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TEXTILE Manufacturing WORLD

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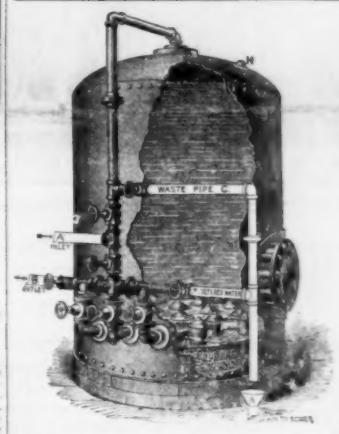

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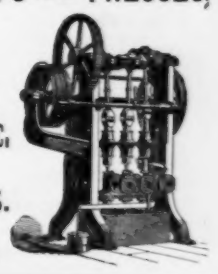

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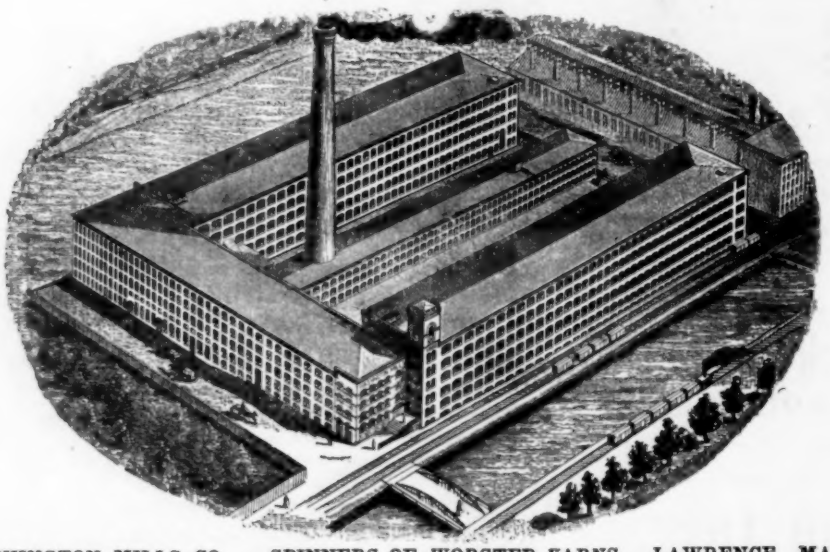

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THE
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A MONTHLY JOURNAL

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"Textile Mfg. World, monthly, Boston, has the largest circulation rating accorded by the American Newspaper Directory to any paper in the United States published in the interests of the textile manufacturing industries and allied interests."

The Situation.

The present condition of affairs, and the immediate outlook, have improved considerably during the past few weeks.

Belated buyers have been placing orders and mills are busy filling them, but many manufacturers look upon it as a temporary spurt. We are inclined to believe that the revival will help to prolong its own life.

Money is coming once more into the hands of the working people; long standing accounts due tradesmen and store-keepers will be paid, and enable more liberal purchases to be made.

Imports are at a low ebb, and conducted on a most conservative basis, and American manufacturers are getting the principal benefit of the revival.

In cotton goods more attractive lines are offered than ever before, and the handsome novelties at low prices are almost compelling orders.

Many plain goods are being sold for export, buyers having been apparently convinced that the market is at bed rock.

The woolen goods market has been quite active, especially in dress fabrics. Men's wear has shown some improvement, but buyers are very conservative.

The uncertainty of the tariff question hangs like a cloud over the business horizon, and only until it is removed can business be restored to normal trade conditions.

June seventh is the earliest time asked for a vote even by the supporters of the bill in the Senate, and as the avowed policy of the Republicans is to throw every possible obstable in the way of its passage, it may well be a month or two later before the Senate's decision is reached. Meantime, the dissensions and breaches in the Democratic party are multiplying, and their chances of united support for their bill are growing less.

Every new election gives emphatic protest from the people, that they do not want this bill, and if present indications could be accepted as conclusive, it would seem now as if we were not to have it, at least in its present form.

Good Signs.

We note the starting on full time of a number of mills, and what is also better, that in some marked instances wages have been restored to their original figure before the cut downs, which have been so generally necessary.

If it were possible for the manufacturers to run their mills full time and pay full wages, we know from personal contact with a great number of them that nothing would please them better as a rule, and if their available capital was sufficient to pile up goods without any particular regard as to what the future of the market might be, we have no doubt that with unlimited capital the fact of furnishing increased employment would produce sufficient confidence and increased buying capacity to bring the market to a firmer foundation.

Unfortunately, however, we have met very few who have many millions of dollars available to tie up, or to do anything else with, and when it comes to the question of tying up available capital on such a market as now confronts us, the encouragement to increase wages to their former level, is far less than we, together with most manufacturers, could wish.

The treasurer of one of the large mills where a strike is now in progress is reported to have said, to a reporter, in effect, that if he could run his mills and get a very slight profit on goods, nothing would please him more than to post an immediate notice cancelling reductions, and running full time, or to that effect, and that he would paint it in the reddest, gladdest letters that could be found.

We believe that this is the true sentiment of nearly all the manufacturers, and that as a rule manufacturers are very anxious to find a living chance to advance wages, but the actual advances which can be consummated at the present time, we fear must continue to be happy exceptions, although we are glad to see some increases of wages materializing.

Improved Machinery and Shorter Hours of Labor.

With the radical improvements which have been made in all lines of manufacture, and the introduction of machines which will do the work of from two to one hundred men, and in many cases even more, it would at first thought seem that the field of labor must of necessity become more and more restricted.

Looking at this matter on the surface only, the ancient machine smashers in England were not only justified in their work, but were patriots and humanitarians. Looking at it more deeply, however, and in the light of experience, we find that while all progress marches over more or less dead men's bones, and that it is naturally unfortunate for the people who furnish the bones, still the fact has been demonstrated beyond the possibility of dispute that the nation possessing the largest amount of improved machinery gives to its people more employment and at better pay than those countries where machinery is either comparatively unknown or very slightly in use.

In the "good old days" when good mechanics worked from 12 to 15 hours per day, and one was considered almost a prince to have such luxuries as carpets and pianos, we all know from the experience of those who can recall the times, that not only were wages very low in purchasing power but also work was very scarce, and wages were paid at the convenience of the employer, or without any particular regularity, quarterly, semi-annually, or annual settlements being considered about the proper thing.

We make mention of these facts in connection with the present wonderful development of mechanical matters, to bring out more forcibly the social conditions which now confront us, and past experience on the social problems which must shortly be solved.

We are in the height of the mechanical epoch of improvement, have just entered the electric, and also are making advances in the line of chemical developments. We believe the next great step forward in human progress will be in the line of greater improvement in the social conditions of working people.

Were we to continue the former practice of 12 and 14 hours per day of labor, with our present methods of production, it would seem that the number of unemployed would be very greatly increased, and also that with the progress which is being made, the present day of ten hours is becoming, and in fact is at present, obsolete.

From a manufacturer's standpoint the greatest point for consideration is that the state of the market shall be such as to absorb goods at a profit, and a large amount of unemployed labor so greatly restricts the market, from their inability to purchase, that purely from a business motive only, the great problem is to increase the area of employment.

From the humane standpoint, the intense suffering caused by lack of employment, which not only causes privation to the parties interested but also absorbs the incomes of those who are not too heartless to have any sympathy for their fellow mortals, is a thing which should be remedied on business principles as far as possible.

Shipping and mail facilities are now such that it is impossible for one state to adopt a more humane, civilized and enlightened policy than its rivals, unless they desire to kill their manufacturing interests, and thus produce idleness, as compared with comfortable employment.

This applies not only to states but nations, unless artificial barriers are interposed, and should any state attempt to bring its hours of labor to a materially less number per week than its rivals, we should instantly perceive where the state rights of other states in failing to take similar action becomes not only state wrongs to humanity, but positive clogs to civilization.

We have previously advocated national legislation on all labor matters that enter directly into the element of competition between manufacturers or producers in different states. It is our belief that the party which consistently favors the protective principle for our national industries should also still further perfect protection to labor direct, as regards immigration, etc., and still more than uniform conditions should be brought about in all sections of the country as far as possible, by judicious legislation.

The Democratic party, favoring free trade, naturally would erect no barriers between the product of foreign labor and the product of our own, hence our own labor must compete on a foreign basis. They also favor the idea of extreme state rights, in other words, that every state should be a law unto itself, forgetting that a state is only a small portion of the nation, and that separated from the nation itself it would be comparatively insignificant.

Under the extreme state rights theory, it is perfectly consistent to expect that a state having less enlightenment and less manufacturing interests than another, would feel that it must take the easiest and most apparent method of securing industries, and while other states were legislating as far as possible to favor labor, some of the less enlightened states could very radically leave their labor question to be settled entirely by individual greed and local conditions.

Without uniformity of laws on the question of hours of labor, we see no prospect of attaining a rapid but gradual reduction in the hours per week, or per day, from the reasons stated. Even with uniform and national legislation on these questions, we see no chance to improve the condition of American labor if any reduction is made in the artificial barrier of protective tariff which stands between our own producers and the producers of foreign countries.

We are now coming to a time when social conditions of labor, the hours of toil, and the better subdivision of the product must naturally be considered as never before, from the fact of our rate of progress being greater than ever before.

Ultimately, all the improvements made whereby one person does the work of many, or wherein the product of operatives can be increased with reasonable labor, tend directly to the advantage of labor as well as capital, and it would be a very ignorant man who would care to go back to the conditions of even thirty, much less fifty years ago.

We believe that the next great move of the Republican party should be the persistent advocacy, as one of its fundamental principles, of *the nationalization of all laws pertaining to labor*, and the gradual approach by fixed and specified stages to 48 hours per week as the standard of labor in manufacturing and other establishments, which are now counted under the provisions of labor laws generally.

Socialistic Tendencies.

In all times of depression there are many who from sincere motives or from lack of other and more profitable employment, are anxious to lead, or at least to join in, quixotic undertakings to abolish original sin, with poverty and all its attendant evils, and to revolutionize existing conditions with ofttimes more energy than skill.

The present effort of Coxey to bring to Washington from 100,000 to 150,000 men, according to circumstances, is something which deserves rather more serious consideration, and a far greater spirit of sympathy and forbearance than is usually accorded to this movement.

The improvement of business and the enlargement of the field of labor, which is sought to be attained by the method of expending $20,000,000 per month on national roads, is a question on which men of great ability have ample scope for difference, and it certainly seems attractive for men of small experience to have the government start a row of printing presses to turning out paper dollars, to be distributed for services which cannot fail to be of positive value to the nation. Many of these people no

doubt have as pure motives as any who sit in the legislative halls of Congress or the Senate, and while starvation or lack of employment does not trouble some people greatly if it keeps outside their immediate vicinity, still the people who get caught on the starving act are very apt to squirm somewhat, or at least to feel uncomfortable over the incident, and to think that present conditions in some way are not all that they could desire, as far as they are personally concerned.

It is impossible for the government to prevent all cause for grievance, and to furnish a ready made smile for every individual throughout the country, with peace and plenty attached; in fact, many things which by gradual approaches may be not only practical but desirable, if attempted with precipitation, would not only bring great disaster, but defer the very results which they aim to accomplish. Nevertheless, when such a movement is started by any body of men, be they cranks, statesmen, mistaken idlers or what not, they are entitled, according to our belief, to a charitable and full consideration. True, many of these people are not only unemployed but unemployable, and doubtless some of them are beyond question pests to the community which they infest. That does not however make it that all, or even the majority, are vagabonds, and deserving of no attention.

Silk in Novelties for Men's Wear.

Many of the styles that are brought in vogue by fashion as the highest novelties are frequently nothing more than a repetition or re-arrangement of former styles. Some patterns never lose their popularity. Such is the case in the use of silk for men's wear, never entirely wanting in the season's patterns, sometimes of very limited use, but just now seeming again to be fashionable. This might have been foreseen, for last year there was a revival of silk pointilles in cloth for suits and sacques, and as the goods proved popular the fashions for this year might have been foreseen to be in this direction.

Silk threads will be much used, either light or heavy, according to the kind of cloth. For sackings, suitings, trouserings, etc., fine silks will be liberally used. In consequence of its extreme fineness, the silk thread should be doubled or twisted with a woolen or worsted thread, and these double threads brought up to the face of the cloth. It is an elementary fact in the art of weaving that a costly yarn should be brought to the face of the fabric as much as possible. If wrong weaves are employed, the whole effect is lessened, and all the advantages to be gained by the use of silk are lost.

Cloth must be well combined, a good weave chosen, and relative proportion between the number of ends and picks studied. Attention must also be given to the twisted thread. If it is not properly twisted, the heavy woolen thread will absorb the fine silk one, so that it almost disappears from sight, and loses its effect to a great extent, especially in the after processes of weaving, fulling and scouring. The twist has to be made in such a way that the wool threads shall serve as a support for the fine silk thread around it.

The colors chiefly used for silk are few, viz.: white, orange, cherry, lilac, and in smaller proportions, blue, green, and lemon yellow. They are used separately or intermixed, for instance: white and orange, orange and lilac, gold and cherry, cherry and lilac, etc.

Many of the same weaves now employed for suitings, sackings, trouserings, etc., of small patterns would get an entirely new effect, and have an appearance of high novelty, by using threads doubled and twisted with silk. If the warp is to be brought up partly or wholly on the face of the fabrics, such as in corkscrews, regular or brokens, and sateens in small diagonals, almost straight, the silk twisted thread is to be used in the warp. If warp and weft are to show equally, as in plain or fancy cassimeres, or similarly constructed weaves, it may be used both ways, in warp only or in warp and filling, showing the effects of checks conbined with the effect of weaves.

The use of silk as thus described is made chiefly in fabrics with dark grounds, such as blacks, navy blues, browns, greens, etc. Some lines are made in ranges, where the silk is constantly kept white and the ground shades only vary through a line of dark, such as cadet blues, bronzes, etc., and a variety of mixtures extending from dark to medium shades.

For fancy styles of suitings and trouserings all-silk threads are used, several being twisted together in warp, producing small bright stripes which are quite pronounced.

In fancy cloths with fancy threads, which are now used quite extensively, the proper composition of the fancy thread is quite important, for the style of the cloth depends upon it. To replace one variety by another will change the whole aspect of the fabric. Some of these fancy threads are used in very large proportion, constituting a fabric almost entirely by themselves, while others are used in very small proportion.

The character and position of these fancy novelty yarns does not differ very much this year from what it was formerly. The novelties vary principally in the shades, size of the single threads before being twisted, etc. These novelty yarns are usually quite expensive, and the use of them is therefore restricted to the higher priced fabrics, or else they must be used with care, and not woven too freely into the fabric.

Good Business Ahead.

I have just completed a tour of nearly 10,000 miles, during which I have visited 25 states and everywhere made diligent inquiry as to the stocks of merchandise on hand and the prospect for the early future of business," says Mr. Herbert Myrick, treasurer of the Metallic Drawing Roll Co., Indian Orchard, Mass.

He interviewed several hundred men, including country storekeepers, city merchants, drummers, local manufacturers, etc., along the route which included the principal cities in every Southern state except Florida, in Texas, California, Utah, Colorado, Kansas, and the Mississippi Valley states. Almost without exception the testimony was that stocks in retailers' hands are very light, while jobbers and commission merchants in the Central, Western and Southern states also report light supplies. All this is specially true of the various manufacturers of cottons. For nearly a year, local dealers have been buying from hand to mouth, and consumers have been economizing, but now clothing, shoes, hats, etc., need replenishing. When this consuming demand does spring up, it will be active and is likely to give the mills all they can do to supply it. Mr. Myrick found under consumption of manufactures a great cause of complaint, but it has been the experience heretofore that such periods are followed by an era of extraordinary consumption. Hence with but small stocks of goods at the mills, the feeling in the sections visited, was very hopeful for the future of cotton spinners.

The progress in cotton manufacturing at the South greatly impressed this observer. Mr. Myrick found that whenever Southern and Western mills have been properly managed they have been profitable. This fact seems to be appreciated now by the numerous parties who are promoting new cotton mills in the South, as is is found difficult to get capital for such enterprises until experienced managers have been obtained. An admirable instance of the difference between poor and good management was noted at the Graniteville (S. C.), Mfg. Co., where the Supt. T. H. Rennie, formerly of Lewiston, Me., has converted a failure into a success and changed a run down property into one of the best kept, one of the neatest and one of the best equipped mills in the South. Practically all the new mills in the South and Southwest are adopting the patent Metallic Roll and in mills already equipped, it is rapidly taking the place of the old style roll.

The Wool Market.

BOSTON, April 7, 1894.

The volume of business for the month has been considerable and embraced nearly all descriptions, but it comes in spurts as manufacturers buy only to cover orders; there have been some lines bought for speculators' account, but this business is of a very uncertain nature and only takes place when exceptionally cheap wools are offered.

Prices have been well sustained, and on wools of fine and fine medium grade with staple are very firm. Low medium wools continue in good request and prices may be said to be a trifle higher.

The advance guard of the new clip, fat sheep's wool, has appeared on the market and some sales have been made of the desirable grades. Some of the houses already have their solicitors in the field and there promises to be a lively competition for wools, as a number of houses who never handled stock on commission before will be in the race. It is difficult to see on just what basis one could figure to buy wools for the coming season. Wools of some grades, which now sell well at firm figures, are said to be down practically to free wool figures, but when the manner in which domestic wools are put up is taken into account there is apt to be a lowering of value.

Ohio and Pennsylvania Delaine is well sold up and in good demand. Such stock as has been sold, readily brings 24 cts. Michigan delaine is practically *nil*, and is quotable at 21 to 22 cts.

XX Ohio and Pennsylvania has been in good request and some good blocks have moved at 22 cts. A prominent mill is said to have bought quite a line at an interior point at a trifle under these figures.

X Ohio appears scarce and is nominally quotable at 21 cts. There has been little change in the position of Michigan fleeces of this grade; the supply is light and sales have been made at 18 to 19 cts.

Unwashed and Unmerchantable wools are well sold up; some sales of fine fat sheep have been made at 13 to 14 cts.

No 1. Fleece of staple are in good request and lots when found move readily at 24 to 25 cts.

Medium Unwashed fleeces have continued in active request and the demand far exceeds visible supply. Kentucky wools grading good 1-4 and below, sell at 22 to 23 cts. Maine and Missouri at 20 to 21 cts. Braid out of these wools is quotable at 18 to 20 cts.

Territory Wools have had some attention and good sized blocks have been moved; the demand seems to be more especially for staple, and lots containing a fair percentage of this, move readily on a basis of 35 to 36 cts. for Fine Medium, and 38 to 40 for Fine. Scrub lots of Fine and Fine Medium are purchaseable at about buyer's own figures.

Texas wools have been in good request and move on same basis as Territory for staple wools, six and eight months growth wools have moved on basis of 30 cts. clean.

Pulled wools of most all the grades have been well sought, more especially the B supers, which are in good request at 27 to 28 clean. There has been more or less speculation in bright wools of this character and although the market appears to be well cleaned up, stock which has been put away for safe keeping will make its appearance from time to time, as the necessities of the holders or market price warrant. Combing wools of all grades are well sold up.

Australian: this has been a banner month for Australians. Large lines of these wools have been moved at ruling figures. Most of the sales made however are in bond, consequently a large percentage of the wools do not go into immediate consumption. Wools of 70s quality move on a basis of 65 cts. clean; 60 cts. is about the lowest figure at which stock grading 60s to 64s quality can be bought. There has been some business in Lambs with the knitters. Good staple wools free of burr sell at 65 to 66 cts. Burry lots sell anywhere from 55 to 62 cts. according to the percentage of vegitable matter.

There is little change in the outlook; the element of uncertainty on the tariff keeps manufacturers close buyers and prices within bounds. The volume of business for the heavy weight season is on the whole very disappointing, not over one-third of the orders having been placed or compared with previous years. Mills running on a low grade of goods are all fairly busy, and those making goods containing large percentages of wool substitutes have all they can attend to.

PATENTS CROSBY & GREGORY, 34 SCHOOL STREET.

Telephone 3593, Boston. **Office Established 1854.** Cable address Aniline.

George W. Gregory, in November, 1874, resigned his position as Principal Examiner U. S. Patent Office to enter the firm.

Patents secured in the United States and all other countries. Reissues obtained. Interferences conducted. Suits brought and defended for infringement, and searches made as to the validity of patents. Prepared to give special and expert attention to cases involving knowledge of cotton, wool, leather and metal working machinery, including boots and shoes and electrical, chemical and metallurgical inventions and steam engineering. Correspondence solicited. No charge for preliminary advice. Personal consultation best when possible.

HOPEDALE, Mass., January 24, 1893.

Mr. George W. Gregory, of Crosby and Gregory, has taken out for us since January, 1875, more than two hundred patents. GEO. DRAPER & SONS.

PATENTS

Joseph A. Miller & Co.,

CONSULTING ENGINEERS.

EXPERTS IN THE

TEXTILE, MECHANICAL AND CHEMICAL ARTS.

A thorough practical and scientific knowledge of the useful arts, and extensive experience, enables us to be of great assistance to manufacturers and inventors in perfecting useful improvements.

Researches made in American and foreign works to determine the validity and utility of inventions. Reports and arguments furnished in patent litigations.

United States and foreign PATENTS, DESIGNS, and TRADE MARKS procured.

Office, Butler Exchange, PROVIDENCE, R. I.

New Machinery and Processes Coming on the Market.

Items for this department are inserted without regard for advertising patronage or money consideration. We want them as news, and any one sending such particulars will confer a favor on the editors. The statements made are claims, and must not be understood as officially endorsed by the editors.

Grease Extractors. W. E. Burton, 33 Hawley St., Boston, is placing an improved grease extractor on the market which is claimed to thoroughly cleanse the exhaust steam from all grease or oil and render the exhaust as clean as the live steam, and the water of condensation pure and clean for all such purposes as dyeing piece goods, hats, etc. One great advantage of this extractor is its simplicity and ease of perfectly cleansing, it being said that the extractor can be perfectly cleaned in fifteen minutes.

Circular Knitting Machine. On page eleven will be found a full illustration of the improved circular knitting machine being brought out by the Leighton Machine Co., Manchester, N. H. (successors to Geo. A. Leighton). The features of this machine are its ability to fashion and to change stitch from plain to fancy while at the same time an automatic racking motion gives great variety to the work. On this machine ladie's vests are knit with fancy bust, etc. and some illustrations are shown of the work produced.

Travelling Platform for Picker Rooms. Stephen N. Bourne of the Stark Mills, Manchester, N. H., has invented an improvement in delivering cotton from the bale to the picker. This system is to insure good and regular mixing, airing and ageing, and is economical in operation. Full particulars can be had by addressing Geo. Draper & Sons, Hopedale, Mass., who arrange to place this system on license.

Spianing Frame. The Fall River Machine Co., Fall River, Mass., are now showing at their shop an improved spinning frame which spins direct from the slubber or intermediate roving. The draft between first and second back rolls is very slight, between second and third, the same as on fly frame, or six to seven, while between the front rolls the draft is the same as usual on any spinning frame. The yarn is of excellent quality and the frame is attracting much attention.

List of Textile Patents for March, 1894.

Drawings and specifications furnished for fifteen cents each. Address "Patents" Box 222, Brooklyn, N. Y.

Apparatus for Forming Sheds in Looms electrically. 515,775. Joseph Kauffman, Hanover, Germany.

Azo Dye from Amidophenosulfo Acid. 516,381. C. Rudolph. Offenbach-on-the Main, Germany, assignor to the firm of K. Oehler.

Basic Yellow Dye. 516,577. Erhart Schleicher, Ludwigshafen, Germany, assignor to Badische Anilin and Soda Fabrik.

Black Dye. 516,604. R. Kirchhoff, Berlin, Germany.

Blue Tetrazo Dye. 516,757

Blue Tetrazo Dye. 516,758

Blue Tetrazo Dye. 516,760. Johann J. Brack, Basle, Switzerland, assignor to L. Durand, Huguerim & Co., St. Fons, France, Basle, Switzerland and Huningen, Germany.

Brown Azo Dye. 516,380. C. Rudolph, Offenbach-on-the-Main, Germany, assignor to firm of K. Oehler.

Circular Knitting Machine. 516,722. Joshua D. Hemphill, Huntington, assignor to Chas. B. Alling, Derby, Conn.

Circular Knitting Machine, Stopping Mechanism for. 517,045. H. A. Houseman, Phila., Pa.

Diarnide Base. 516,752.

Diarnide Base. 516,753.

Diarnide Base. 516,754.

Diarnide Base. 516,755. J. J. Brack, Basle, Switzerland, assignor to L. Durand, Huguerim & Co., St. Fons, France, Basle, Switzerand, Huningen, Germany.

Draw Cam for Stocking Knitting Machines. 516,723. Joshua D. Hemphill, Huntington, assignor to Chas. B. Alling, Birmingham, Conn.

Established 1866.

WRIGHT, BROWN & CROSSLEY,

Solicitors of **U. S. and Foreign PATENTS**

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BOSTON, MASS.

Charles F. Brown, Mechanical Expert

Arthur W. Crossley, Late Examiner U. S. Pat. Office,

Washington Office, Atlantic Building, F St.

EXPERTS in TEXTILES and TEXTILE MACHINERY. Write for information as to how to proceed to protect an invention and procure a patent. References in all parts of New England. The manager of our Washington office was for 14 yrs an examiner of the U. S. Patent Office.

EDWIN PLANTA,

SOLICITOR OF PATENTS

American and Foreign.

Office, No. 27 School St.,

Room 30. BOSTON

Drying Apparatus. 515,913. L. M. Larsson, Dyefors near Dye and C. J. Bergstrom, Finshyttan, Switzerland.

Electric Stop Motion for Knitting Machines. 515,965. Arthur A. Merritt, Cohoes, N. Y., assignor of one-half to Laughlin Bros., same place.

Embroidering Machine. 516,155. Jakob Fischel, Vienna, Austria, Hungary, assignor to Leon Akles, Rutherford, N. J.

Gray Azo Dye. 516,393. Meinhard Hoffman, and Carl Krohn, Feechenheim near Frankfort-on-Main, Germany.

Knitting Machine. 516,960. Luigi, Bosi, Terricciola, Italy.

Loom. 517,389. W. F. Draper, Hopedale Mass., assignor to Geo. Draper & Sons same place.

Loom Harness Motion. 516,163. J. Magee, Westerly, R. I., assignor of one-half to Harrison M. Litchfield and Geo. F. Lamphere same place.

Loom Shedding Mechanism. 517,129. C. H. Thomas, Neugersdorf, assignor to C. A. Roscher, Altgersdorf, Germany.

Loom Shuttle. 516,198. O. Piper, Manchester, N. H., assignor of one-half to G. O. Draper & Sons, Hopedale, Mass.

Machine for Measuring, Cutting and Stitching Fabrics. 516,357. W. H. Palmer, Jr. Norwich, Ct., assignor to Palmer Bros., New London, Ct.

Machine for Sponging Cloth. 516,945. T Sarfert, Chemnitz, Germany.

Mechanism for Drawing Yarn or Thread into Carriers. 516,147. H. Wyman and J. A. Clark, Worcester, Mass., assignor to Crompton Loom Works.

Polyazo Dye. 515,897. J. J. Brack, Basle, Switzerland, assignor to L. Durand, Huguerim & Co., St. Fons, France, Basle, Switzerland and Huningen, Germany.

Red Dye. 516,384. H. A. Bernthsen, Maunheim, Germany, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany.

Red Azo Dye. 515,764. A. G. Green, London, England.

Red Rhodamin Dye. 516,385. H. A. Bernthsen Maunheim, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany.

Red Tetrazo Dye. 516,756.

Red Tetrazo Dye. 516,759. J. J. Brack, Basle, Switzerland, assignor to L. Durand, Huguerim & Co.

Rhodamin Dye. 516,386. M. Ceresole, Neuville sur Saone, France.

Rhodamin Dye. 516,580. M. Ceresole, Neuville sur Saone, France.

Shedding Mechanism for Looms. 516,169. Geo. W. Stafford, Providence, R. I.

Slat and Wire Fabric Looms. 517,058. C. E. Parks, and L. Mollart, Watertown, Wis.

Spindle Bearing. 517,233. J. H. Northrop, Hopedale, Mass., assignor to G. O. Draper & Sons, same place.

Spindle Support. 11,407. (Reissue) H. F. Woodmancy, Whitinsville, Mass., to Whitin Machine Works, same place.

Spinning Mule Safety Attachment. 517,314. E. G. Varney, Hartland, Maine.

Spinning Spindles. Device for Adjusting Bearings of. 517,270. G. O. Draper, Hopedale, Mass.

Spool or Bobbin Holder. 516,332. A. B. Homer, Galveston, Texas.

Straight Knitting Machine. 516,144. J. A. Wilson and R. Hutchinson, Nottingham, England.

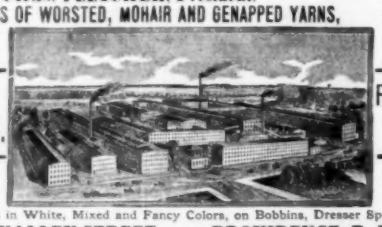
Supporting Device for Spinning Spindles. 516,042. Robt. Atherton, Paterson, N. J.

Tension Device for Spinning Mules. 517,043. H. Hibbert, R. Fawcett, and J. Worthington, Preston, England.

Twisting Machine Stop Motion. 517,050 Hand, J. W. Collins, Pawtucket, R. I.

Yarn Swift. 516,015. Louis M. Hernoz, Phila, Pa.

Yellow Tetrazo Dye. 516,468. J. J. Brack, Basle, Switzerland, assignor to L. Durand, Huguerim & Co., same place, also St. Fons, France, Huningen, Germany.

NATIONAL AND PROVIDENCE WORSTED MILLS
CHAS. FLETCHER, President.
MANUFACTURERS OF WORSTED, MOHAIR AND GENAPPED YARNS, SPUN ON THE
ENGLISH SYSTEM.

FRENCH SYSTEM.
Worsted Yarns in White, Mixed and Fancy Colors, on Bobbins, Dresser Spools and Skeins.
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ALLEGHENY WORSTED MILLS,
Wolstenholme, Harrigan, & Clarke, MANFRS. OF

Worsted YARNS,
ALL NUMBERS SINGLE AND TWO-PLY,
Sell Direct,
on Cop or in Skein, for Weaving and Knitting Purposes, in White, Natural & Fancy Mixes.
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Spinners of Worsted Yarns.
For Coatings, Dress Goods, Jersey, and Knitting Purposes.
Dyed to Order in all Colors.

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MANUFACTURERS OF
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Knitting YARNS & Weaving.
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Imported and Domestic
YARNS.
Mohair, Worsted and Fancy Yarns.
Single Combed Sea Island Cotton Yarn on Cops for the woolen trade a specialty.
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GUERIN SPINNING CO.
JOS. GUERIN, Agent
Custom Spinning of Woolen and Merino Yarns of all descriptions (specially in fine numbers) spun according to the Belgian system.
92 South Main St., - Woonsocket, R. I.

ABEGG & RUSCH,
WORSTED YARNS
Dry Spun. Nos. 36s to 100s.
COTTON YARNS
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RIVER SPINNING CO.,
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Woolen, Merino and Cotton Yarns. Fine Yarns a Specialty, for Coatings, Suitings, Dress Goods and Flannels, in White, Solid Colors and Mixtures.
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Dealer in odd and end lots of
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CHAS. J. WEBB & CO.,
Foreign and Domestic
WOOL, HAIR and NOILS,
142, 144 & 152 to 156 N. Front St.,
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WEAVING and HOSIERY YARNS.
We Buy for Cash
WARPS, COPS, TWIST and SOFT SKEINS, Single, Double, 3-ply, 4-ply, etc.
COLORED YARNS for HOSIERY
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YARNS
SOLIS - - BOSTON.
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WM. MASON MFG. CO.,
SPINNERS OF HOSIERY AND THREAD YARNS
J. H. HAMBLY, Treas. and Selling Agent, PROVIDENCE, R. I.

Littlefield Manufacturing Co.
K. K. HOSIERY YARNS, COPS, CONES & SKEINS.
Threads for Spooling. Single and Double Yarns for Silk, Woolen or Cotton Goods.
PAWTUCKET, R. I.

YARNS.

The Eastern Yarn Market.

BOSTON, Apr. 6, 1894.

Single and Double Roving White Cotton Yarn. We note a curious condition of affairs among the knitters, some have orders at a profit, some at a loss, but the tendency is towards a better trade. Many orders have been placed, and the outlook is certainly much improved. Within a month many idle machines will certainly be in motion. We note an inclination on the part of some manufacturers, who as a rule make fine goods, to make a cheaper quality, in order to keep their machines running. One concern in particular we know accepted an order for a thousand dozen, and the profit on the deal amounted to but $50. This order was taken to keep their hands together.

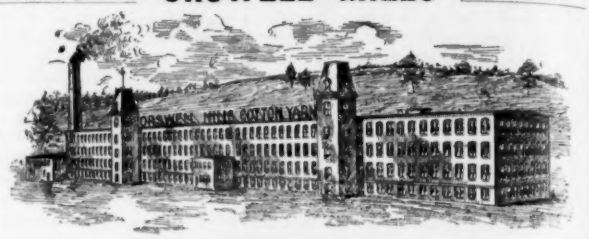
Ribbed underwear is doing better than the flat goods at this time. The demand is for something that is cheap, and the conception of some of the buyers nowadays of what is cheap is below the actual cost of the material which goes in to make the goods. There appears to be no price for yarn, anything to make a sale, but there is certainly one thing that is encouraging, spinners will not accept contracts. Although willing to sell for immediate delivery cheap, the yarn thus sold is presumably yarn that spinners have in stock, which they want to clean out; it would certainly be a good thing for spinners if the raw stock would advance two or three cents. That would bring buyers to terms, and manufacturers might then be able to get a new dollar for an old one. The trouble seems to be at this time that buyers are afraid, although they have got to have the goods. In another month there will be no doubt a positive rush for goods, on account of buyers holding off too long. We noted a number of buyers at the mills in our trip round last week. Spinners are not running full, but there is a disposition to place orders, and before long many spinning mills will be running as usual. The less said about prices the better.

The rubber boot lining trade will shortly start up, and will take lining which will require considerable yarn.

The Southern mills are feeling this depression more than any of the spinning mills in the country to-day. If the Wilson tariff bill becomes a law, it certainly will affect that class of trade more than any other.

Colored Cop Yarn. Some colored yarns are being bought at this time, particularly by the ribbed underwear trade, in 9s, 10s and 12s, mostly in Jaeger colored. Prices are comparatively better on these yarns than on Egyptian. Many of the large white cop spinning mills have recently taken to making colored yarns. There will be considerable yarn in colors used in 16s and 18s in flat goods, with fleece lined back. The mills making ribbed underwear have many orders at this time, and are getting from them day to day in considerable quantity. Deliveries, however, are most of them very light, in many instances not until September and October. There is no reason why later, knitters making this class of underwear should not be very busy.

Combed Allen Seed and Egyptian. The manufacturers of fine underwear, both flat and ribbed goods, are not doing so well at this time. All the orders placed seem to be for the poorer qualities. We find many of the manufacturers very much discouraged. There are some mills with orders, and these mills have been buying their yarn from hand to mouth, and insist on their yarn almost as soon as placed, the result is the delivery for the underwear is delayed, and there is a bad falling off all round. Prices hold up fairly well on fine yarns. Orders are being placed at this time for 2/42s, single 7s, single 10s, single 40s, both in Allen Seed and Egyptian. There is no doubt that there must be more light weight goods made. Last year there was no season, and consequently there are no stocks on hand, and the jobbers and retailers have not been buying. The result of this will be that when the warm weather sets in and the demand comes for this class of goods, it will be almost impossible to secure them. One thing is certain regarding the tariff, that English and French combed yarns cannot be imported profitably into this country.

CAPACITY, 50,000 Spindles. ORSWELL MILLS FITCHBURG MASS.


COMBED OR CARDED
COTTON YARNS
In Chains and Skeins, on Balls, Beams, Spools—single or twisted.

Colored Cotton
COP
YARNS
Solid Colors and Mixtures,
Spun from Colored Cotton
For Knitters and Weavers.
FAST BLACK A SPECIALTY.
Camels Hair Mixes,
Jaeger Mixes and Balbriggans.
E. JENCKES MFG. CO.,
Pawtucket R. I.

KERR THREAD CO.
—SPINNERS OF—
Fine Combed Sea Island COP SINGLES
All Numbers, 30s to 150s.
Fall River, Mass.

EDDY & STREET,
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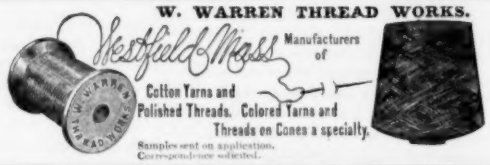
Silk and Cotton Braids for Underwear trade. Embroidery and Knitting Silks.
6 So. Water St., PROVIDENCE, R. I.

GRANT YARN CO.,
COMBED AND CARDED COTTON
YARNS 40s and above, AND WARPS
FITCHBURG, MASS.

W. WARREN THREAD WORKS.


Manufacturers of
Cotton Yarns and Polished Threads. Colored Yarns and Threads on Cones a specialty.
Samples sent on application.
Correspondence solicited.

JAS. CHADWICK & BRO.
Limited.
Egyptian and Sea Island COTTON YARNS,
COP, SKEIN, WARP, OR CONE. 20'S TO 150'S.
ALSO FULL LINE OF IMPORTED YARNS, 40s TO 200s.
503 Broome St., NEW YORK. Branch Office, 241 Chestnut St., Phila.

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J. H. LANE & CO.,
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COTTON and JUTE YARNS
110 Worth St., NEW YORK.
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122 & 124 Chestnut St., Philadelpia, Pa.
51 & 53 Summer St., Boston.
Cotton, Woolen & Worsted Yarns.
All numbers on Hand and Made to Order.

ALEX'R KING & CO.
YARNS.
FINE IMPORTED YARNS A SPECIALTY
54 Leonard St., New York.

SAWYER, MANNING & CO.,
YARNS,
86 & 88 Franklin St., NEW YORK.

TILLINGHAST, STILES & CO.
COTTON YARNS
ALL NUMBERS.
Chain Warps, Skeins, Cops, Cones, Beams, Spools, Colored and Grey Yarns. Hosiery and Combed Yarns.
20 Market Square, Room 53. Providence, R. I.

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MANUFACTURERS OF
TWINES, THREADS AND YARNS.
Jacquard Harness Twines of all kinds on hand and made to order.
12 SOUTH FIFTH STREET
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TUCKER & COOK MFG. CO
MANUFACTURERS OF
WHITE AND COLORED COTTON WARPS
Nos. 6s to 30s,
On Beams, Jack Spools or in Chains.
CONWAY, MASS.

FLEMING & CHAPIN
YARNS THREADS TAPES BRAIDS
CROCHET LACE EDGING AND CHAIN for Ribbed Underwear.
215 Church St., PHILA.

COTTON YARNS
2s TO 40s
For WEAVING AND KNITTING.
WHITTIER COTTON MILLS,
LOWELL, MASS.

ROBERT J. WALKER,
2335 Hamilton St., Phila., Pa.
★Star Finishing Works
All kinds of cotton goods finished in the best manner, including Fine Madras Shirtings, Ginghams, Cheviots, Tickings and Cottonades.
Refinishing a specialty.

BARRY, THAYER & CO.,
Cotton Commission Merchants,
32 INDIA ST., - BOSTON.
Special attention given to orders from woolen mills for high grades and Peruvians.

Combined Capital Stock, $2,000,000.00. WM. D. HOWLAND, TREAS. Total Spindles, 140,000. BYRON F. CARD, AGT.

NEW BEDFORD MFG. CO.,
HOWLAND MILLS CORP'N,
ROTCH SPINNING CORP'N.

Single or Twisted, Combed or Carded.
Hosiery Yarns, Chain Warps, Skeins, Spools or Cops, also on Beams from Nos. 10's to 100's.

HIGH GRADE COTTON YARNS.

J. MULLINEAUX, JR., Phila. Agt., 215 Chestnut St.
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GLOBE YARN MILLS — FALL RIVER MASS. — 1881

Capital $1,200.000. 100,000 SPINDLES. Weekly product 120,000 lbs. 14's to 100's.

COTTON YARNS

Superior Qualities
SPECIALLY ADAPTED FOR
Silk, Plush, Upholstery and Hosiery
MANUFACTURERS.
American Peelers. ✣ Sea Island. ✣ Egyptian Cottons.
Superior Qualities Combed & Carded — Furnished in singles, 2, 3, 4 & 6 ply chain warps, skeins, beams, spools, tubes, cones & Lisle Thread yarns.
COPS FOR WEAVING & TWISTING. COPS FOR HOSIERY.
Arnold B. Sanford, - - Treasurer.

TRADE MARK.

Arnold B. Sanford, *Pres.* Arthur H. Mason, *Treas*
Capital Stock, $400,000.

Sanford Spinning Co.
Fall River, Mass.
30,000 Spindles. Weekly Product, 50,000 pounds 14s to 40s.

Novelty Cotton Yarns
From American Peelers and Egyptian Cottons.
OUR SPECIALTY: Superior qualities of Hosiery Yarns, Natural Shades of Cottons, and in Colors, Jaegers, Mixes and Bleached, Hosiery Cops on Long Tubes, Skeins, Tubes, Cones and Lisle Thread Yarns. Furnished in Carded and Combed Qualities in Singles, 2, 3 and 4plies.

Hosiery AND Weaving Yarn ALBERT IVINS CROLL, BOSTON.

CREENE & DANIELS MFG. CO.,
Combed and Carded
Yarns, Threads, Twines and Chain Warps,
Furnished in any manner desired by the trade.
PAWTUCKET, R. I.

HADLEY SPOOL COTTON AND FINE YARNS COMPANY
COTTON SPINNERS.
MILLS AT HOLYOKE, MASS.

SPINNERS OF
FINE COTTON YARNS
30s TO 100s.
Gray, Bleached, or Colored. On cop, in skein on spools, cones or tubes.
Fine Cotton Warps, single and two-ply, in chain, etc.
95 Milk Street, BOSTON.

Wilkes-Barre Lace Mfg Co.
SPINNERS OF
COTTON YARNS.
Double-Carded, Frame-Spun,
Double-Roving, In Skeins.
30s TO 40s, TWO-PLY ONLY.
Wilkes-Barre, Pa.

THE WILLIAM CLARK COMPANY,
WESTERLY, R. I.
Mills equipped with the latest and most improved machinery.
Combed Egyptian from No. 20s to 100s. Combed Sea Island from No. 40s to 200s.
Also 2, 3, 4, 5 ply and 5, 9 and 12 ply cable laid.
Hosiery Yarns on Cops, Tubes or in Skeins, Grey, Bleached or Dyed. (Fast Colors.)

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Established 1860.—Incorporated 1893.
THE S. BLAISDELL JR., CO.,
Egyptian **COTTON** Peruvian
American Long Staple a Specialty. and all American Southern points. Shipments direct to mill from Egypt, Peru
CHICOPEE, MASS.

EGYPTIAN COTTON
HERMAN CAPELLE,
Rothschild Building, Cor. Leonard St. & W. Broadway
NEW YORK.
H. BINDERNAGEL, Alexandria, Egypt.

Pawtucket Dyeing & Bleaching Co., BLEACHERS AND DYERS OF
COTTON & COTTON YARNS, STOCKINET & JERSEY CLOTH.
OFFICE WITH BLODGETT & ORSWELL CO., Manufacturers of Glazed Yarns,
E. G. BLODGETT, Prest. PAWTUCKET, R. I. E. W. ORSWELL, Treas

WOOLEN YARN.

The demand for woolen yarn is beginning to be greater. Weavers are placing orders, knitters of two ply yarns are buying extensively, and many inquiries and orders have been received by the underwear and hosiery trade. We have no doubt before long that all this machinery will be in motion. We know that Phillips & Kunhardt, Lawrence, on account of their receiving larger orders, have restored the wages of their operatives to what they were before the cut, and we believe that many other manufacturers will do the same as soon as they receive orders.

WORSTED YARN.

Worsed yarns are selling better, and many orders are being placed. Many of the spinners have been running on short time so long that they are entirely out of yarn, and as the orders for cloth have been placed late, it is almost impossible to get the yarn around and into goods in time for delivery. The dress goods manufacturers are doing remarkably well, and we also note a growing demand for quarter blood in Australian. Spinners are feeling decidedly better, and if the Wilson tariff bill could be either killed or the rate of cloth advanced to 50 per cent., leaving the yarn where it is now, weavers would be all right. We note that the Nonantum Worsted Co. have restored wages to the price before the cut, also several other concerns. We expect shortly to see a still greater improvement in business. We quote prices as below:

DOUBLE ROVING WHITE COP YARN.

11s and 12s	16 cts.
16s	17 cts.
20s	18 cts.
Jaeger and Camels Hair, 10s to 12s	19 cts.

Cones 1 cent extra.
Other colors quoted on application.

Egyptian Combed.

1/10s to 12s	21 to 22 cts.
1/20s	27 to 28 cts.
1/34s	32 cts.
1/40s	36 cts.
1/45s to 1/50s	41 cts.

Cones extra price.

ALLEN SEED COMBED.

1/10s	23 to 24 cts.
1/40s	35 cts.
2/40s	37 to 38 cts.

WOOLEN YARN.

Will quote on inquiry, as there is too great diversity to give satisfactory quotation.

WORSTED YARN.

Fine Australian.

2/24s	.90
2/40s	.95
2/50s	1.00
2/60s	1.15

Australian.

2/24s	.80
2/40s	.90
2/50s	.95
2/60s	1.10

Better than half-blood Australian.

2/30s	.75
2/40s	.85
2/50s	.95

Half-blood Domestic.

2/40s	.70

DOMESTIC.

1/4 Blood, 2/28s, 24s, 18s	60 cts.
2/32s	65 cts.
3/8 Blood, 2/32s	60 cts.
2/28s, 24s	60 cts.
1/2 Blood, 2/22s, 28s	65 cts.

The Philadelphia Yarn Market.

PHILADELPHIA, April 7, 1894.

Trade conditions are about the same this month as last. There has been an increased volume of business, but prices have not stiffened materially; in some instances, they are lower than last month. There is a firmer value in cotton the last few days, and spinners have positively declined some offers recently. We quote:

WARPS.

20/1	13 cts.
22/1	13 to 13½ cts.
26/1	13¼ to 14 "
20/2	14 cts.
12/2	13 "
30/2	20 "

SKEIN.

26/1	13 to 13¼ cts.
20/1	13 to 13½ "
19s soft	13½ to 14 "
4s to 8s soft	12 to 12½ "
10s to 12s hard	12 cts.
10s to 12s soft	12¼ cts.
14s hard	12 to 12½ cts.
14s soft	13¼ to 14 "
14/2 hard	12½ to 13 "
20/2	13¼ to 14 "

SOUTHERN CONES.

6s to 8s	13 cts.
10s	13¼ to 14 cts.
12s	14 to 14¼ "

SOUTHERN COPS.

6s to 8s	13 cts.
10s to 12s	13 to 13½ cts
16s	15 to 15½ "

MIXED CONES (COLORS).

6s to 8s	16½ cts.
10 to 12s	17 to 17½ cts.
15s	17½ to 18 "

SKEINS.

8/3 Carpet Chain	12 cts.
60-yd DR filling	8 to 8½ cts.
8/3 slack	12 to 12½ "
9/4	12 to 12½ "
10s double reel	12½ to 13 "
16/3 slack	14½ cts.

EASTERN COPS.

26s shuttle	15 to 15½ cts.
40s "	18½ to 19 "
10s to 12s hosiery	15¼ cts.
14s	16 "
16s	16½ "
20s	18 to 18½ cts.
24s	19 cts.
30s	22½ "

Eastern Cones 1 2 to 1 1-2 ct. extra.
Skein 1-2 above cops.
Egyptian Cotton 2 1-2 to 3 ct. above white.

Woolen yarns very dull, worsted in better demand at firmer rates.

Counts and Gauges.

This is the title of a little handbook for the spinning and manufacturing branches of the hosiery trade, by James Henry Quilter, of Leicester, England, who is well known as a teacher of frame work knitting in the English technical schools, and is a leading contributor to the columns of the textile journals. His book is an exhaustive treatise on the system of numbering yarns, the comparative relation of the different sizes of different kinds of yarns, and the gauges of knitting machinery, with explanation of same, together with the yarns used for different gauges. The book is reprinted from articles which have appeared in the Textile Manufacturer, of England.

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SILK MANUFACTURERS.
ALL KINDS OF
Knitting Silks, Ribbons AND Piece Silks
USED FOR TRIMMING KNIT GOODS.
TRAMS, ORGANZINES and SPUN SILKS, in the Hank, or on Spools or Cones for Manufacturers' Use. Silks for Special Purposes Made to Order.
MILLS: South Manchester and Hartford, Conn.
SALESROOMS: 477, 479, and 481 Broome Street, NEW YORK.
79 Chauncey Street, BOSTON.
186 Franklin Street, CHICAGO.

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MANUFACTURERS
Spun Silk Yarns, Worsted Yarns,
FOR ALL PURPOSES.
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SILK YARNS FOR THE HOSIERY, WEAVING AND KNITTING TRADE GENERALLY,
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WILLIAM RYLE & CO.,
DEALERS IN
Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Foreign and domestic
SPUN SILK YARNS AND NOILS
Importers of European and Asiatic Raw Silk.
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ALFRED TAFF, Successor to H. T. Gaddum & Co.,
Importer of and Dealer in
SPUN SILK Yarns, Waste, Noils, etc.
69 MERCER STREET, - NEW YORK.

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Spun Silk Yarns.
TWISTS OF ALL KINDS.
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LUCAS & HENRY,
Orianna Bleach Works
2550-52-54 NORTH THIRD STREET, PHILADELPHIA.

WM. MACFARLANE & CO.,
Silks for Knitting
and all Classes of Textile Work.
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HOME BLEACH & DYE WORKS
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Dyers and Bleachers of Cotton Yarns,
In Skein and Warp. Works at
Pawtucket and Valley Falls, R. I.

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ON HOSIERY AND YARNS.
JEWETT CITY, CONN.

FAST FANCY COLORS.
We make a specialty of dyeing **Mode** and **Tan** shade on hosiery and yarns, as also all other fancy shades. **Colors absolutely fast.** For particulars address
OAKDALE DYE WORKS,
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FAIRHILL DYE WORKS,
S. W. Cor. American & York Sts.,
PHILADELPHIA.
Fast Black a Specialty. Cotton Hosiery Dyeing in all Colors.
E G GROSSMAN.

Gorham Rogers & Co.,
— IMPORTERS OF —
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20 Federal Street, Boston.

CONE, TAPER, MAILING, PARALLEL, **TUBES.**
DOUGLAS BROS., Fall River, Mass.

Wm. Pickhardt & Kuttroff,

B. Anilin & Soda Fabrik Sp. P.

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COAL TAR DYES and EXTRACTS.

Alizarine Dyes a Specialty.

READ HOLLIDAY & SONS, LIMITED,
No. 7 Platt St., New York,

Manufacturers of **Acid Magenta,** (Patented.)

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Aniline Dyes, Aniline Oil, Aniline Salts, Arseniate of Soda, Chlorate of Potash, Yellow Prussiate " Chemicals, Etc, Indigo, Indigo Extract, Archill Liquor, Cudbear, Picric Acid, Zink Auxiliary,

WORKS: Hudderfield, Wakefield, ENGLAND, Rouen, FRANCE, Brooklyn, N. Y.

BRANCHES: BOSTON, 267 Atlantic Ave, PHILADELPHIA, 45 N. Front St.

JOHN J. KELLER & CO., 104 MURRAY STREET, NEW YORK.

Sole Agents for JOHN R. GEIGY & CO., Basle, Switzerland.

Aniline Colors, Dyewood Extracts, Etc.

Cotton Printing Specialties, Fast One-Dip Cotton Colors, Fast Wool Colors.

134 Chestnut Street, Philadelphia. Branch Houses: 153 Milk Street, Boston.

Calleine Blue
Calleine Black

NEW ONE DIP DYES. Faster than Alizarine Colors.

Produced at One-half the Cost.

F. E. ATTEAUX & CO., 172-178 PURCHASE ST., BOSTON.

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ANCHOR COLOR MANUF'G CO.
Importers and Manufacturers of
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BEACH & COMPANY,
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Proprietors GROVE WORKS DYEWOOD MILLS.
Agents British Alizarine Co., Brooks, Simpson & Spiller, Anilines, Edward Muckhow's Dyelog Extracts, J. R. G. Cochineal, Etc.

JONATHAN HORSFALL,
Anilines and Dye Stuffs,
216 CHESTNUT ST., PHILADELPHIA, PA.

INNIS & CO.,
Manufacturers, Importers & Dealers in
DYE WOODS, DYE STUFFS AND CHEMICALS.
EXTRACTS OF LOGWOOD. FUSTIC.
Poughkeepsie Dye Wood Works, Established 1816.
Stores: 120 William St., New York. 39 Strawberry St., Phila. 161 Kinzie St., Chicago.

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—MANUFACTURERS OF—
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LOGWOOD. FUSTIC. BARK CUTCH.

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Harway Dyewood & Extract Manufacturing Co.,
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DYEWOODS, DYEWOOD EXTRACTS and LIQUORS, HAEMATINE
ONE DIP BLACK DYE, CUTCH EXTRACT.
Importers of Indigo, Cutch, Madder, Chemicals, &c.
WORKS FLUSHING, L. I. 184 Front St., NEW YORK.

STAMFORD M'F'G CO.,
157 MAIDEN LANE, NEW YORK.
MANUFACTURERS OF
DYEWOODS and DYEWOOD EXTRACTS,
LIQUORS AND FLAVINES.
Importers of Chemicals and Dyestuffs.

INDIGO EXTRACT
MANUFACTURED BY
WM. J. MATHESON & CO., Ltd.
New York, Boston, Philadelphia and Providence.

COLORS-DYEING.

This department is under the supervision of **Mr. Edward Prag**, and communications intended for it should be addressed to him either at our

Philadelphia Office, 240 Chestnut Street, or **Laboratory**, 2220 Lambert Street, Phila.

Experimental Dye Sheet Recipes for April.

Those manufacturers or dyers among our subscribers who have not received the Dyed Sample Sheet and desire it, will please notify us.

No. 109.

Yellow on Loose Wool.

DYED WITH FUSTIC EXTRACT M; STAMFORD MFG. CO., 157 MAIDEN LANE, NEW YORK.

(For 100 lbs. of loose wool.)

Prepare a mordanting bath containing,

2% Bichromate of Potash,
1½% Avery's Lactic Acid.

Enter wool and boil for one hour. Lift, and enter into a fresh bath containing,

15% Fustic Extract M.

Enter wool at 150° F., raise to a boil and boil for one hour. Fork out, wash and dry. This Fustic extract is of great strength and clearness in color.

No. 110.

Navy Blue on Loose Wool.

DYED WITH FRENCH LOGWOOD EXTRACT F; STAMFORD MFG. CO., 157 MAIDEN LANE, NEW YORK.

(For 100 lbs. loose wool.)

Prepare a mordanting bath containing,

3% of Bichromate of Potash,
1½% Avery's Lactic Acid.

Enter wool and boil for one hour. Lift, and enter wool in a fresh bath containing,

15% of French Logwood Extract F.

Enter wool at 140° F., raise slowly to boil and boil at spring boil for one hour. Then lift, wash and dry.

No. 111.

Black on Loose Wool.

DYED WITH FRENCH LOGWOOD EXTRACT F; STAMFORD MFG. CO., 157 MAIDEN LANE, NEW YORK.

(For 100 lbs. loose wool.)

Mordant and dye in the same way, as receipe No. 110, but instead of using 15% of French Logwood Extract F., use 20%.

For a standing kettle we would recommend starting the kettle with 25 or 28% of extract; for the second lot add 16%, and for further lots 15%. About one per cent. of Fustic Extract M with the logwood is beneficial for the black.

We have made quite a number of experiments with the above extract and will say it is an exceedingly fine extract; experiments on cotton have also proven very satisfactory.

If a very deep black is wanted, we would recommend entering the wool from the logwood bath, into a bath containing 3% of copperas.

No. 112.

Blue on Woolen Yarn.

DYED WITH ALIZARINE BLUE; ANCHOR COLOR MFG. CO., 464-466 CHERRY STREET, NEW YORK.

(For 100 lbs. of yarn.)

Prepare a mordanting bath containing,

2% Bichromate of Potash,
1½% Avery's Lactic Acid.

Enter yarn and boil for one hour. Lift and enter yarn into a fresh bath containing,

20% Alizarine Blue.

Enter yarn very nearly cold, give six turns, raise temperature slowly to a boil and boil at a slow boil for 30-40 minutes. Lift, wash and dry.

No. 113.

Old Rose Pink.

DYED WITH AZO ORCHIL R; NEW YORK & BOSTON DYEWOOD CO., 55 BEEKMAN STREET, NEW YORK.

(For 100 lbs. of yarn.)

Prepare a bath containing,

1% Azo Orchil R,
20% Bisulphate of Soda.

Enter yarn at 140° F., raise slowly to a boil and boil for one hour. Lift, wash and dry.

SCHULZE-BERGE & KOECHL,
Successors to Schulze-Berge, Koechl & Movius,
79 MURRAY ST., NEW YORK.
Sole Agents for the **ANILINE COLORS AND ALIZARINES**
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FAST COLORS for Wool, Yarn and Piece-Goods Dyeing, and Calico Printing
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Sykes & Street,
SOLE U. S. AGENTS FOR
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PARIS, FRANCE,
ANILINE COLORS, OIL, SALT, ARCHIL, CUDBEAR, &c.
COEZ, LANGLOIS & CO., Havre, France; Dyewood Extracts, &c.
SADLER & CO., England; Alizarine, Oxalic Acid, &c.
85 WATER ST., NEW YORK.
85 India St., Boston. 45 N. Front St., Philadelphia. R. R. Street & Co., Chicago, Western Agents.

No. 114.

Cardinal on Woolen Yarn.

DYED WITH AZO ORCHIL R; NEW YORK & BOSTON DYEWOOD CO., 55 BEEKMAN STREET, NEW YORK.

(For 100 lbs. of yarn.)

Dye the same way as recipe 113, but use 8% of Azo Orchil R.

Azo Orchil R dyes very evenly, is a little faster than the regular Orchil, and will stand fulling to some extent.

No. 115.

Dark Blue on Flannel.

DYED WITH SULPHON-CYANINE 3R.; E. SEHLBACH & CO., 77 WILLIAM STREET, NEW YORK.

(For 100 lbs. of flannel.)

Prepare a bath containing,

4% Sulphon-Cyanine 3R,
5% Glauber's Salt,
5% Acetate of Ammonia.

Enter flannel at 120° F., run four ends, raise temperature slowly to 194° F., and after keeping at this temperature for 30 minutes, add 1% acetic acid and keep for 30 minutes longer at this heat. Lift, wash and dry.

No. 116.

Navy Blue on Wool Flannel.

DYED WITH JET BLACK R; E. SEHLBACH & CO., 77 WILLIAM STREET, NEW YORK.

(For 100 lbs. of flannel.)

Prepare a bath containing,

4% Jet Black R,
5% Common Salt,
5% Acetate of Ammonia.

Enter flannel at 120° F.; run four ends, raise temperature slowly to 194° and after keeping at this temperature 30 minutes add one per cent. acetic acid to the bath, then keep for 30 minutes longer at this temperature.

Sulphon-Cyanine 3R and Jet Black R, are fast to fulling and fairly fast to light.

No. 117.

Yellow on Cotton Yarn.

DYED WITH ULTONIA YELLOW; W. W. HANNA, 50-52 N. FRONT STREET, PHILADELPHIA, PA.

(For 100 lbs. of cotton.)

Prepare a bath containing,

2% Ultonia Yellow,
15% Common Salt,
2% Fankhausine.

Enter yarn at 130° F., raise to a boil and boil one hour. Lift, wash and dry. Without the aid of Fankhausine, 20% of common salt should be used.

No. 118.

Purple on Cotton Yarn.

DYED WITH RUBRAMINE; C. BISCHOFF & CO., 80 FRONT STREET, NEW YORK.

(For 100 lbs. of cotton yarn.)

Prepare a mordanting bath containing,

15% Sumac Extract,
2% Fankhausine.

Enter yarn at 100° F., and allow the yarn to lay in the sumac over night.

Next morning prepare a bath containing,

2½% Tartar Emetic.

Enter yarn cold, work for 30 or 40 minutes, lift and wash. Then enter yarn in a bath containing,

1½% Rubramine.

Enter yarn at 120° F., raise slowly to 150° F., keep at this temperature for 40 minutes, lift, wash and dry.

No. 119.

Blue on Cotton Yarn.

DYED WITH INDAMINE; C. BISCHOFF & CO., 80 FRONT STREET, NEW YORK.

(For 100 lbs. of cotton yarn.)

Mordant cotton yarn, the same way then described in recipe 118.

Dye out with,

3% Indamine.

Manipulate in the same way as recipe 118.

No. 120.

Grey on Cotton Yarn.

DYED WITH NIGRAMINE; C. BISCHOFF & CO., 80 FRONT STREET, NEW YORK.

(For 100 lbs. of cotton yarn.)

Mordant yarn in the same way as receipe 118. Dye out with,

2% Nigramine.

Manipulate the same as recipe 118.

Rubramine, Indamine and Nigramine are basic colors and can be dyed without being previously mordanted.

NOTE. It will be seen that in recipes 109, 110, 111 and 112, we have used Avery's Lactic Acid instead of tartar. We would advise every dyer to try lactic acid; it is beyond a doubt cheaper than tartar, easier to use, leaves no sediment. It is better than oxalic acid for alizarine colors, as it will not redden the shade, and has the tendency of helping to develop the color. Write for a sample to the Avery Lactart Co., 169 Devonshire St., or 181 William St. Representative for Philadelphia and Pennsylvania, Jonathan Horsfall, 216 Chestnut Street, Philadelphia, Pa.

Correct Dye Recipes.

Our travelling agents report to us that some dyers express their opinion that recipes given in dyers' journals are usually incorrect and could not be used practically.

So far as the TEXTILE WORLD is concerned we will state for the benefit of our readers, that the recipes appearing in our journal are correct and can be used *practically* in the dye house, and they will produce the exact shade as represented on our "Experimental Dye Sheet." Naturally the dyer will have to use ordinary care and judgement, and correct the water which he uses, if the same contains impurities, as the latter is sometimes the sole cause of not obtaining good colors. Our experiments are made on a fairly large scale and great care is taken in compiling the recipes, and allowance made for the quantities of dye stuff and acids, when used for dyeing in large lots. Dyers need not hesitate to use our recipes.

Matching Samples.

We receive at our laboratory, nearly every day, letters requesting us to match colors, but very seldom do the dyers who make the requst send material to make the test on.

To receive prompt attention from our laboratory, please observe the following rules:

If you wish to have a color matched, send enough cloth, so we can experiment.

If you want a color matched on mixed goods, mention in your letter the percentage of cotton and wool the goods contain.

Postage to prepay answer should accompany every such request.

EDWARD HILL'S SON & CO.,
25 and 27 CEDAR STREET, NEW YORK,
CUTCH, OXALIC ACID, CAUSTIC POTASH,
Blue Vitriol, Carb. Potash,
Chlorate of Potash, Caustic Soda, Arsenic, Shellac, Ceylon and Cochin Cocoanut Oil.

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383 WEST STREET, NEW YORK,
Importers of Celebrated "Golden Fleece" Extra Refined Concentrated 98 per cent.
Powdered Caustic Soda.

J. JAECK BROS., 69-71 WYTHE AVE., **BROOKLYN, N. Y.**
Extracts of Indigo, Indigo Carmine, Indigotine, Refined Indigo, Dressing, Softening, Bichloride of Tin, Bisulphide of Soda.

Could Commercial Co., Successors to HENRY A. GOULD & CO. Established 1861.
Importers and Jobbers of Indigo, Cutch, Anilines; Original Makers of Black Dye, Cutch Substitute.
35 Hartford St., Boston. 78 William St., New York.

CHAS. A. JOHNSON & CO.,
Successors to J. C. Bloomfield & Co.
Dealers in
Dyestuffs & Textile Trade Supplies.
Detergent for Bleaching, a substitute for soda ash, a specialty.
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PH. H. KARCHER & CO.,
Importers and Commission Merchants of
Dye Stuffs, Extracts, Chemicals, Etc.
14 Cedar St., - - NEW YORK.

A. B. FRENZEL, M. I., Mech. E.,
Consulting and Mechanical Engineer
Drying "in Vacuno" Powders, Liquids and Solids. . . . . .
31 & 33 Broadway, NEW YORK.

Roundabout Notes.

For the Textile Mfg. World.

DYEING, PRINTING, BLEACHING AND FINISHING.

Jacquard loom weavers frequently have a difficulty with the cards in sudden changes of weather. A hot day makes them shrink and a spell of wet weather has the opposite effect, Cartier has invented a composition which obviates these difficulties, and has the merit of being easily applied in liquid form either with a brush or by the immersion of the card. It is prepared from 90 parts of animal blood, 9 parts of slaked lime and 1 of alum. The slaked lime in the form of dry powder, is thrown into a quantity of water equal to the amount, by measure, of blood used. This mixture is thoroughly beaten, until it is quite homogeneous, and then the blood is added and the whole is again thoroughly well stirred up. After washing over with this mixture the card becomes impermeable and unchangeable as to dimensions, whatever the atmospheric alterations may be. Any sort of animal blood may be used; ox-blood is recommended as it is easy to procure in large quantities.

***

A new finishing material which can be applied to all sorts of fibres and mixtures has been brought out by Messrs. Voland. The standard proportion is ten parts gun cotton, ten parts of castor oil, and eighty parts of alcoholized ether, but these proportions vary according to the nature of the textile and of the effect to be produced. This, of course, must be a matter of experiment. The mixture gives the cloth a fuller feel and a good appearance. Moreover the impermeability and incombustibility of the goods are increased so that in every way the mercantile value of the stuff is enhanced. It seems to matter little in what stage the mixture is applied, before or after calendering, whether dyed or not, or with other finishing materials. No special machine is required. The cloth is saturated with the liquid and dried in the usual manner.

***

Vignon prepares stannous chloride by the action of gaseous hydrochloric acid or granulated tin in water. By this means he obtains a solution of from 60 to 65 deg. Be. He takes, for instance, 100 kilos of granulated tin in 200 kilos of water, and passes through this a current of gaseous hydrochloric acid. This, of course, dissolves in the water and attacks the tin. The necessary quality of the gas can easily be worked out. The solution of stannous chlorate obtained by dissolving tin in dilute hydrochloric acid is only of from 20 to 22 deg. Be.

***

Erban & Specht's process is explained in the current number of *L' Industrie Textile*. All the mordant colors employed as alkaline solutions are capable of dyeing completely textiles in a compressed state, in whatever stage of manufacture the fibre may be in. The process consists in, first of all, impregnating the material, either by pressure or in a vacuum with an alkaline solution of the dyestuff, then drying or steaming it and treating it with the necessary mordant and finally fixing the color by steaming. The volatile alkalies have the advantage of evaporating in drying in such a way that the color is deposed in an insoluble form on the fibre, whereas, on the other hand, it remains soluble if employed with the fixed alkalies. Matters such as do not precipitate the dyestuff may be added to the dyebath, for instance, aluminate and stannate of soda, ammoniacal solutions of the oxides of chrome, copper, zinc, cobalt, nickel and manganese, yellow and red prussiates, chromates, oil for Turkey red, glycerine, or thickening materials such as gum or dextrine.

After impregnation, the excess of liquid must be removed from the textile by pressure or other means according to the nature of the material, and it must be at once dried or slightly steamed, which has the same effect. After this, the mordant bath is made with salts of a weak or volatile acid such as acetic. The excess is eliminated, and the fixing of the lake is completely effected by steaming, either at once or after a preliminary drying. The advantage of the process is its simplicity and the avoidance of the loss of textile matter occasioned in the ordinary preliminary processes.

***

Some communications to the Mulhouse Society are published in the current issue of their journal, and they are interesting, although the committee after experiments do not report altogether favorably upon them. The author proposes to obtain double color effects on mixtures of woolen and silk by treating in neutral bichromate, which mordants the woolen alone, the silk remaining white. The woolen thus has the power of oxidizing the aromatic amines, and can be given any color, leaving the silk absolutely untouched and susceptible of being dyed with the anilines or other colors in the usual way.

***

A new process of producing bistre on cottons is also among the notes, and in this, advantage is taken of the property of tannin to reduce permanganate of potassium. The tissue is mordanted in a boiling bath of tannin, 60 grammes to the litre at least, and allowed to cool. Then it is passed through tartar emetic to fix the tannin, and dyed with a minimum of 5 grammes per litre of permanganate. If 20 grammes to the litre be employed, the time taken in the dyebath is only one minute. The author recommends this bistre as a step in the production of aniline black by dyeing with aniline salt and oxidizing with chrome, but the reporters do not think very favorably of this process worked on a commercial scale.

***

Reversible cloths, with the two sides each of a different color, are very fashionable at present, and the Höchst a/M, Germany, firm produce them by first dyeing the cloth and then printing one side in a darker shade. If the cloths are chlored for printing, the difficulty of dyeing the chlored cloth is got over by chloring after dyeing. Chloring is not absolutely necessary, however, as some good effects can be obtained by combining dyes resisting a tin crystal discharge with others which become destroyed. This method does not give the perfection of shade, touch and level dyeing gotten without discharge. The chloring is absolutely necessary when the discharge method is not the one chosen.

***

A writer in the Berlin Färber-Zeitung calls attention to the loss occasioned by the presence of tannin as an adulterant in logwood extracts. Unfortunately it is a very common adulterant, although it injures the feel of logwood dyed wools, and causes bad shades to be produced. The only case in which it does not do positive harm is in the production of blacks on cotton, in which case the yellow of the tannin helps to give a good jet black. But blues on cotton gotten with logwood and sulphate of copper come up greyer in tone and lighter in shade, according to the amount of tannin present. As acetic acid produces precisely the same effect, it is evidently the production of tannic acid that is the cause of the mischief, and therefore a little carbonate of soda will correct the fault. But too much alkali will do harm, and the bath will quickly go thick and bad in warm weather. Moreover the addition of the carbonate, however carefully, cannot correct the chief mischief, and that is that the dyeing power of the logwood is lost in proportion to the amount of tannin present.

Azo Orchil R.

The above product has been recently introduced by the well-known New York & Boston Dyewood Co., 55 Beekman St., New York.

Azo Orchil is dyed with bisulphate of soda, and dyes very even, and so far as we have tested the same, it is a little faster than the ordinary orchil, and will stand fulling to some extent. 1-5 per cent. produces a light pink; 8 per cent. a rich cardinal. The bath almost exhausts itself.

For practical experiments see April dye sheet.

New Methylene-Blues GG, F and N (patented.)

Messrs. Wm. J. Matheson & Co., 178 Front Street, New York, have issued Bulletin XXVI, displaying nine samples dyed out with Methylene Blue GG, F, and N. The first claims that the fastness of the new products are equal to the older brands of this class of dyestuffs, but have the advantage of having a greater tinctorial power.

For printing purposes, the new methylene dyestuffs are distinguished by resisting steaming well, and that the printing paste keeps well. Write for bulletin 26 to the above firm if you have not received the same as yet; it will be of interest to you.

Lactic Acid.

Is manufactured by the Avery Lactart Co., 169 Devonshire Street, Boston, Mass., and 181 William Street, New York. We made editorial mention of it in our March issue, but refrained from giving our opinion as to its usefulness in regard to alizarine colors. We have made since our last issue several experiments with lactic acid and principally with alizarin and the alizarine-cyanine colors, and found beyond a doubt lactic acid superior to oxalic acid for these colors. Oxalic acid has the tendency to redden the shades, whereas lactic will leave them clear and bright.

By experimenting with alizarine colors we found that if the wool is mordanted with 3 per cent. of brichromate of potash and 2 per cent. of lactic acid, it will save 3 to 5 per cent. of dyestuff, as the wool receives a much darker bottom with lactic acid, than with oxalic acid. For alizarine blues we recommend the use of per cent. of chrome and 2 per cent. of lactic acid; in fact for dark shades the above method is the best, but for light shades 2 per cent. of chrome and 1 1-2 per cent. of lactic acid is sufficient.

For aniline dyestuffs, we find that 2 per cent. of chrome and 1 1-2 per cent. of lactic is more than sufficient. For olive and brown shades, lactic acid is the very life of the colors and would even be of great benefit if the acid was dearer than tartar, but as it is cheaper than the latter product and much cleaner to handle, and absolutely leaves no sediment (as the grey tartar will do when it is impure), we would advise every dyer to make a trial with lactic acid and we are convinced he soon will bid good by to the use of great tartar.

The manufacturers should by all means insist that lactic acid is used in his dyehouse as it will save him money!

We call dyers' attention to our April issue of the "Experimental Dye Sheet" on which we display blacks and blues, which were dyed on a lactic acid bottom. We will keep on experimenting with lactic acid and from to time report the results.

We draw special attention to the fact that our experiments are based on lactic acid furnished by the Avery Lactart Co. and cannot guarantee that the same results can be obtained by acid manufactured by any other company.

Dyestuff Review.

Haematine 51° of the Harway Dyewood & Extract Mfg. Co., 184 Front Street, New York, seems to have had the call this month, having received quite a correspondence in regards to the same. We also learn that the above firm has made large sales of their new product.

Auramine G. the new product of Messrs A. Klipstein & Co., 122 Pearl Street, New York, is also in great demand, and there is no doubt that this new yellow is very much appreciated by the dyer. We draw again attention to sample No. 100, March Dye Sheet, where a sample is dyed out with 1 per cent. of color.

Benzo fast grey of Messrs. E. Sehlbach & Co., 77 William Street, New York should be of great advantage to manufacturers of corset cloth, as the same is very fast to perspiration. Benzo fast grey is dyed with common salt and soda crystals, but for a medium dark grey the use of soda can be omitted.

Cotton Orange G. and R., the new products of Messrs. Wm. Pickhardt & Kuttroff, 98 Liberty Street, New York, have also received considerable attention. The shades produced with the new cotton orange are very handsome. The color has great tintorial power, 1 per cent. giving a very pretty orange. The colors are dyed with common salt.

Chicago brown G. was the latest brand of the Chicago colors which Messrs. John J. Keller & Co., 104 Murray Street have placed upon the market. The Chicago browns have received great attention from the hosiery manufacturers, the color being very much adapted for dyeing hosiery in particular, the colors being fast to washing and light. Sample No. 108 on the March Dye Sheet shows a sample dyed with 3 per cent. of the new brown, the color is very rich in tone and has the so much desired tan cast.

Light Wool Shades Dyed by means of Akali Solutions from Alizarine Cyanine.

EMIL SCHNABEL IN FAERBER ZEITUNG.

Alizarine-Cyanine and the various brands of anthracene blues, dissolve easily in caustic or carbonate alkalies, in borax and water-glass (soluble glass) just the same as alizarine red, orange, and the latest so called alizarine dyestuffs.

The former idea of making use of the properties of alizarine, has become a fact, through a process patented in Germany, by Erben & Specht. The patent speaks of the use of an alizarine solution for cotton dyeing, but the following will prove that such alkalic solution can be used for wool dyeing.

The wool if dipped in a hot alkali alizarine-cyanine solution, will dye shades according to the dyestuffs, from a reddish pearl-grey to a light violet-blue. These shades are very fast to washing and to a great extent are fast to fulling.

These observations and the circumstance, that the so produced shades were equal in clearness to those produced from aniline dyestuffs, caused me to experiment; to substitute the aniline dyestuffs which are not fast to light, such as methylviolet, etc., in which I partially succeeded.

It is well known that caustic soda or potash, as also other carbonates (though not in such high degree) act very injuriously upon the wool and could not be used for our purpose, but instead use had to be made of ammonia and carbonate of ammonia, as the latter act much milder.

Wool left in a hot ammonia bath is very apt to felt, and the loose wool should not be left in the bath nor boiled long. Very little alkalies should be added to the bath; the wool should be worked at the boil about 30 minutes, but no longer. This manipulation is the most practicable if ammonia is used and gives good results.

Alizarine-cyanine RRR or G, is dissolved in caustic ammonia, then filtered, of which 1-2 gallon is added to the bath which previously has been heated to 68° R., and which contains sufficient water to dye 100 pounds of wool. The wool is entered at once and raked for about 20 minutes; after this manipulation the wool is lifted from the bath, cooled off, and then lightly rinsed. The wool in this way will dye perfectly even.

By this treatment the wool will felt somewhat, but after the same is rinsed and dried, receives again its natural properties, and can be worked without danger into the most delicate mixtures. I have dyed large lots of wool in this way, and have never had any complaints in regard to its fitness in spinning.

As the dyeing has to be done in as short a time as possible, naturally there can be no dyestuffs added to the bath, and to get the exact desired shade is not quite so easy, still, by a little practice, the dyer is soon enabled to fix the concentration of the bath so, that one and the same shade and same depth is obtained.

The wool will loose its clearness and gets a dirty appearance if left longer than 20 or 30 minutes in the bath. Alizarine-cyanine should not be dyed in copper kettles.

Victoria Alizarine.

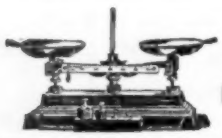
This new color is placed on the market by Mr. W. W. Hanna, 50-52 N. Front Street, Philadelphia, Pa.

This new blue is claimed to be fast to soap and light, and combines with all alizarine colors.

C. BISCHOFF & CO.,
80 Front St., New York. Branches, 110 Walnut St., Phila. 104 Broad St., Boston.
Aniline and Alizarine Colors, Dyestuffs, Chemicals,
ANILINE OILS AND SALTS.
LATEST SPECIALTIES.

Cresylblue, OB pat'd.	For Cotton: absolutely fast to Sunlight.	Thio Versatine, BB	One Dip Cotton Colors.	
" BB "		" Brown, BBB.		
" RR "		" Yellow, R.		
Cresylviolet		" Orange, G.		

Naphtazine Blue (Pat. Applied For)—a fast acid Navy Blue for Wool.
Sole Agents for the U. S. and Canada of
Mommers' Patented Process of Cop Dyeing.
CORRESPONDENCE SOLICITED.



Established in 1840.
HENRY TROEMNER,
710 Market St., Philadelphia.
MAKER OF
FINE SCALES and WEIGHTS,
for Woolen & Cotton Mills, Dye Works etc.
Price List on Application

Muddy water is good enough for Muddy Colors.

CLEAR COLORS
REQUIRE
CLEAR WATER

Which is best secured in any quantities desired, by using the

MOORE FILTER

Water for Dyeing, Bleaching or Finishing, ought to be as clear, bright and sparkling as for drinking.
Cloudy, dead or inferior colors must naturally result from roilly water.
Slow sales, low prices, and increased claims result from poor dyeing.
Don't blame the dyer but

USE THE
Moore Filter.
IT IS A
DIVIDEND EARNER

Correspondence solicited.
MOORE FILTER CO.
HOLYOKE, MASS.

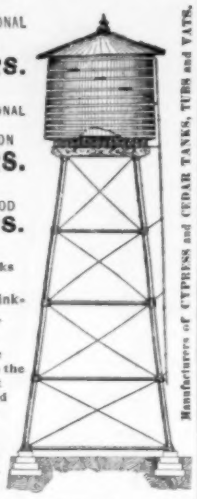
TANKS, TUBS, TOWERS.

PATENT SECTIONAL ALL IRON TOWERS.
PATENT SECTIONAL COMBINED WOOD AND IRON TOWERS.
PLAIN ALL WOOD TOWERS.

Elevated Tanks for Automatic Sprinkling Plants.

Mfrs. of the Tecktonius, also the Scott Patent Lug or Band Fasteners.

Write for Illustrated Catalogue.



Manufacturers of CYPRESS and CEDAR TANKS, TUBS and VATS.

W. E. CALDWELL CO.,
218 and 220 Floyd Street,
LOUISVILLE, KY.

THE J. J. RYDER CO.
DESIGNERS ENGRAVERS PRINTERS
FINE COMMERCIAL PRINTERS.
Photo Engraving in all its Branches.
Specialists in fine Machinery and general Wood Engraving, Portraits, Buildings, etc. Artistic designs in Letter and Bill Heads, Business Cards, Display Lettering for advertising purposes, etc. Best work. Lowest prices. Electrotyping at lowest rates.
210 Westminster Street, Providence, R. I.

THE SCOOP ENVELOPE
Patented February 13th, 1894,
For Mailing Samples
Of dyes, chemicals, fibres, etc.
Samples, Prices, etc., on application to
SCOOP ENVELOPE CO., 26 Reade Street, New York City.
Also manufacturers of the Tension Envelope, which is so favorably known throughout the country for mailing samples, catalogues, etc.

Notes.

—Mr. Kuttroff, of the firm of Wm. Pickhardt & Kuttruff, has gone to Europe and will return in May.

—Mr. Chas. Kelley, vice president of Read Holliday & Sons, Ltd., sailed on April 4th, for England.

—Messrs. C. Bischoff & Co., 80 Front Street, New York, have published a very handsome sample card, of their wool color. The card contains 88 samples, with dye directions. The sample card displays colors of Napthazin blue, Chromo flavine, Brilliant red, alizarine orange, green, brown, blue, chrome, orange (powder) etc.

—The Stamford Manufacturing Co., 157 Maiden Lane, New York, are bringing on the market a new brand of French logwood extract. Experiments with the same in our laboratory have proven that the firm is not claiming too much for it. Practical experiments will be found on the "Experimental Dye Sheet" April issue. The firm has also a new fustic extract.

—Aniline black, said to be ungreenable, is produced by the following process. The cotton is first passed through a bath containing 1 oz. sulphate of copper in two pints of water. Next it is passed through a bath of yellow prussiate of potash, whereby it becomes of a brown-red color, due to the formation of copper ferrocyanide on the fibre. After as much surplus liquor has been wrung out of it as is possible, it is next entered into a dyebath, which is made from 30 pints water, 2 3-4 lb. aniline salt, 10 oz. sodium chlorate, and 3 lb. yellow prussiate of potash. The material is worked in this bath, wrung lightly, then dried at a temperature not exceeding 40° C., and steamed at 15 lb. pressure, whereby a black is developed which does not rub off and is not affected by sulphurous acid.—[Textile Mercury.

The Indian Textile Journal Directory.

We have received from the publishers of the Indian Textile Journal, Bombay, India, a directory of Indian manufacturers, with a supplement giving particulars of the cotton mills working and in the course of erection in Japan.

The directory is not confined wholly to textile establishments, but contains a list of the different manufacturing enterprises in India, and we have been surprised at the great variety of such industries. A brief history of the cotton spinning and weaving industry in India, with some account of the character of the operatives is given, together with brief biographies of a few of the leading manufacturers, who have done so much to develop the great resources of that country. There are now 141 mills working and in the course of erection, with 3,375,917 spindles and 28,164 looms, employing an average daily number of 121,500 hands. The chief centre of the industry is the island of Bombay, where upwards of 2,000,000 spindles are located.

The list of the mills in Japan gives the number as 42,461,464 ring spindles, and 76 761 mule spindles, a total of 538,180, employing about 25,000 hands. There are also about 700 looms in operation. These mills date back to 1880, with the exception of one, and that among the smallest, which was established in 1866.

A feature of the directory which should be appreciated by builders of machinery and dealers in mill supplies, is a classified list of manufacturers and agents handling such lines.

We wish we had more space to devote to a description of this work, and would like to make liberal extracts from its interesting contents. We understand that this work is to be published at regular intervals. While it does not seem as if such improvement could be made over the present edition, we have no doubt that the decided ability and enterprise of the publishers of the Indian Textile Journal will enable them to maintain and possibly improve their work of furnishing practical, useful information to merchants and manufacturers.

—"The Literary Digest" for March 29 is a notable number. Among Topics of the Day there are papers on the Nationalization of Railways; The Canadian Premier and the President of the United States; A German View of Socialism in America; The Elmira Reformatory; Sound Economics in Congress; etc., etc.

Those specially interested in Science will find papers of special value: Ocean Vegetation; Electric Cultivation of Plants; Scientific Problems of the Future; etc, etc.

The number is profusely illustrated. Funk & Wagnalls Company, 18-20 Astor Place, New York.

NEW BRANDS OF DYESTUFFS.

Under this head we publish brief mention of the new brands of dyestuffs which have been placed on the market since our previous issue. More extended description will usually be found elsewhere in our columns.

Azo Orchil R;
For wool. New York and Boston Dyewood Co., 55 Beekman Street, New York.

Methylene Blue GG, F and N, Patented;
For cotton and printing. Wm. J. Matheson & Co., 178 Front Street New York.

Ultonia Yellow;
For cotton. W. W. Hanna, 50-52 Front Street, Philadelphia, Pa.

French Logwood Extract F;
Stamford Manufacturing Co., 157 Maiden Lane, New York.

Fustic Extract M;
Stamford Manufacturing Co., 157 Maiden Lane, New York.

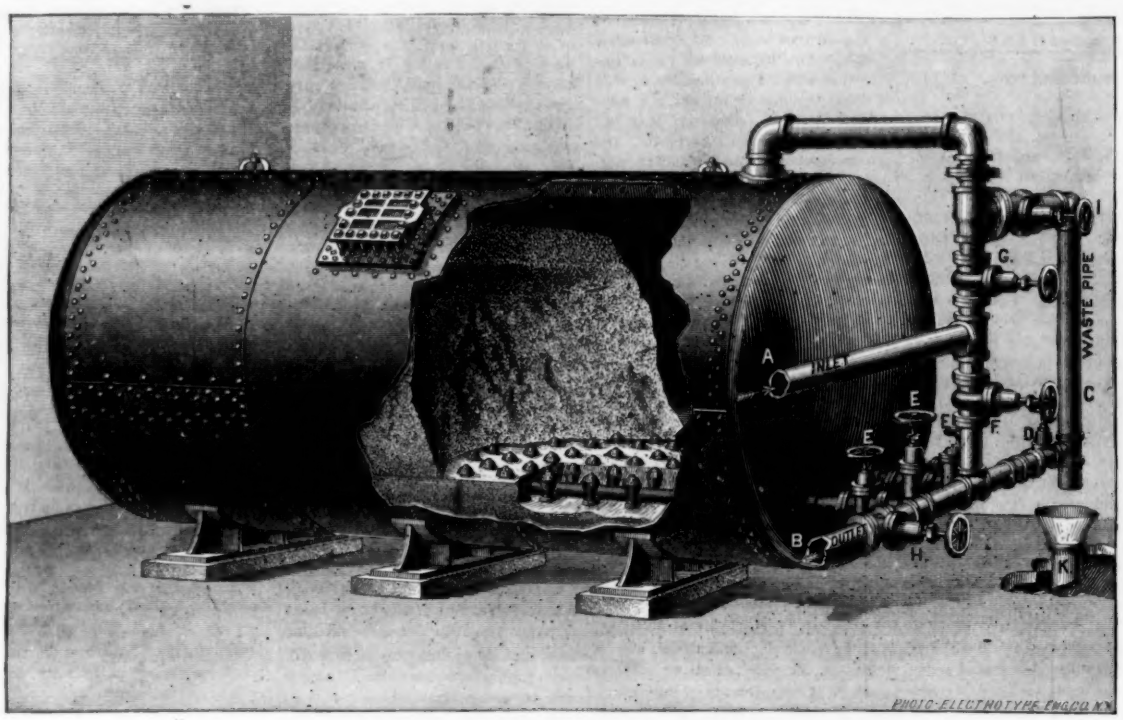
The Army Contracts.

One of the biggest contracts for the year is the Government army contract for military supplies in cloth. These bids are now being invited for the United States Quartermaster's Department, for deliveries to be made in Philadelphia and Jeffersonville, Ind. All proposals are required to be in by April 26. Among the supplies required are the following items. Detailed specifications may be obtained on application to Quartermaster's Department.

41,000 yards duck, cotton, 3 1/2 to 7 ounce, dyed brown.
44,000 yards flannel, 6-4 dark blue, cloth finished blouse.
50,000 yards flannel blouse lining.
85,000 yards Canton flannel.
20,000 yards flannel shirting, 6-4, dark blue.
15,000 woolen blankets.
60,000 yards cotton drilling.
20,000 yards cotton duck, 13 ounce.
15,000 yards cotton duck, 10 ounce.
5,000 yards, eight ounce cotton duck.
15,000 yards cotton duck, 33 inch.
10,000 yards cotton duck, 6 1/2 to 7 ounce, dyed brown.
35,000 yards Canton flannel.
35,000 yards blouse lining flannel.
20,000 yards dark-blue shirting flannel, 6-4.
15,000 yards, 6-4, dark blue, fine quality flannel.
5,000 yards cloow cape lining flannel, 6-4.
2,500 yards 6-4 scarlet cape lining flannel.
100 yards 6-4 gray cape lining flannel.
95,000 yards, heavy quality, 6-4 sky-blue kersey.
10,000 yards, sky-blue, fine quality, 6-4 kersey.
50,000 yards unbleached muslin.
24,000 yards black silesia.
20,000 yards cloth baling.
100 yards crimson cloth, 6-4 facing.
2,000 yards yellow cloth, 6-4 facing.
1,000 yards scarlet cloth, 6-4 facing.
100 yards green cloth, 6-4 facing.
1,500 yards, white cloth, 6-4 facing.
50 yards gray cloth, 6-4 facing.
3,000 yards cloth, 6 4, dark-blue, Army standard.
3,000 yards cloth, 6-4 dark blue, fine quality.
300 yards cloth, 6-4, dark blue, extra fine quality.
100 yards black crepe.
600 yards doeskin, 6-4, sky blue.
25,000 yards corset jeans.

Foster Winders in England.

Mr. G. E. Manning, treasurer of the Foster Machine Co., is now in England, concluding arrangements for making the Foster cone and tube winders on a very extensive scale. The success of the Foster winders has been remarkable, and there has been a constant interest in England, as well as in this country, in these machines, so much so that negotiations have been pending for some time, and the quality of work produced, taken with the increased product, have combined to bring them deserved recognition wherever shown.



PATENT HORIZONTAL SECTIONAL WASHING FILTER. (Description on Page 9.)

—Messrs. Sykes, Allis & Moorhouse, of Reynoldsville, Pa., have just received some new machinery from the M. A. Furbush & Son Machine Co., Philadelphia.

—Thomas Kingsley has resigned with the Glendale Woolen Mill, Glendale, R. I., and accepted a position with Walter F. Slade, Bridgeton, R. I.

—I. W. Wright will succeed W. E. Touchstone, resigned, as superintendent of the Camperdown Mills, Greenville, S. C. Mr. Wright comes from the Spartan Mills, Spartanburg, S. C., where he was overseer of carding and assistant superintendent.

—Joseph Hamley, who resigned as boss dyer with the Swift Mfg. Co., Columbus, Ga., has accepted a similar position with the Nashville Cotton Mill, Nashville, Tenn,

—F. S. Mosher, formerly superintendent of the Clifton Mfg. Co., Clifton, S. C., has accepted a similar position in the Henrietta Mills, Henrietta, N. C.

FULLING AND SCOURING SOAPS.

XXX OLIVE SOAP. PERFECTLY PURE. In Chips, Bars, and Solid.
Is praised by all Dyers who have used it. Manufactured by the
CAMDEN AND PHILADELPHIA SOAP CO.,
507 Main Street, - - - CAMDEN, N. J.

The New York Filter.

This filter embodies the best features of the wellknown Hyatt, National, American and Blessing types of filters heretofore on the market, and having the experience of these pioneers in the filter business to fall back upon, the features selected in the New York Filter Company's standard filter are those which ten years' practical use have demonstrated to be the best.

One very important point is the sectional wash feature, whereby the full force of the reverse current, when washing, is directed against only one-third of filter bed at a time, and cleans the bed perfectly. This system enables the company to do away with complicated machinery for stirring and agitating the beds, in order to break them up and keep them clean.

A coagulating device is furnished with the filters, so that water of uniform clearness and brightness, so necessary in getting uniform colors, can always be depended upon. Dyeing establishments which have been compelled to shut down in time of freshets will appreciate the importance of this point.

This filter is rapidly making its way into textile mills, manufacturers to whose attention it is brought readily recognizing its merits and usefulness. It saves its cost in a very short time, and where used has proved an important factor in the improved quality of the work produced. For the dye house it makes the water, no matter what its original condition, of uniform clearness and brightness, making uniform colors a certainty where all other agents are right. It also effects great saving in the operation of a boiler plant.

The various possibilities of its use are touched upon by the New York Filter Company, in the following letter to the textile trade:

"We are placing a great many of our filters in connection with bleacheries, dye houses and woolen mills, filtering the water and removing from it properties that are detrimental and liable to injure cloth in washing, such as iron or rust, which would come from the waterworks mains, vegetable matter, grease, etc.

"If you will kindly let us know the amount of water you are using per minute, or hour, in washing your woolens, or in connection with your dye house, or for your boilers, we shall be pleased to give you an estimate, guaranteeing satisfactory results.

"You can see by our catalogue that we have put out hundreds of our filters for nearly every class of business, and as we have some 80 cities and towns using our filters successfully, we feel that the matter should be of interest to you, as it would certainly enable you to produce a uniform grade of color in your goods.

"You must bear in mind that this is not a strainer we advocate. We treat the water chemically at the time we are purifying it, and before it is filtered."

Among the "textile" users of these filters are the following:

Belding, Paul & Co., Montreal, Canada; Penman Manufacturing Company, Paris, Canada; Willimantic Linen Company, Willimantic, Conn.; Sibley Manufacturing Company, Augusta, Ga.; Pioneer Worsted Company, Louisville, Ky.; Old Kentucky Woolen Mill Company, Louisville, Ky.; J. Capps & Son, Ltd., Jacksonville, Ill.; Canton Manufacturing Company, Boston, Mass.; Kerr Thread Company, Fall River, Mass.; Hadley Company, Holyoke, Mass.; Howland Mills, New Bedford, Mass.; Border City Manufacturing Company, Fall River, Mass.; Worcester Bleach & Dye Works Company, Worcester, Mass.; Morse Wool Scouring Company, St. Louis, Mo.; Clark Thread Company, Newark, N. J.; Norfolk & New Brunswick Hosiery Company, New Brunswick, N. J.; Clark Mile End Spool Cotton Company, East Newark, N. J.; Ross & Baker, Port Oram, N. J.; Raritan Woolen Mills, Raritan, N. J.; G. T. Stoneham, Albany, N. Y.; Victoria Knitting Mills, Cohoes, N. Y.; Newman & Adams, Cohoes, N. Y.; Le Roy & Lamb, Cohoes, N. Y.; John Scott & Sons, Cohoes, N. Y.; Troy Manufacturing Company, Cohoes, N. Y.; Star Knitting Company, Cohoes, N. Y.; Horrocks & Van Benthuysen, Cohoes, N. Y.; W. H. & D. Akin, Cohoes, N. Y.; J. W. Himes, Cohoes, N. Y.; Neil & McDowell, Cohoes, N.Y.; Anchor Hosiery Mills, Cohoes, N. Y.; Henry S. Bogue, Cohoes, N. Y.; Parsons Manufacturing Company, Cohoes, N. Y.; Root Manufacturing Company, Cohoes, N. Y.; Rankin Knitting Company, Cohoes, N. Y.; Root & Waterman, Cohoes, N. Y.; Munson Manufacturing Company, Cohoes, N. Y.; Morris Mark, Herkimer, N. Y.; Minetto Shade Cloth Company, Minetto, N. Y.; Rob Roy Hosiery Company, Troy N. Y.; Waterford Knitting Company, Waterford, N. Y.; Ford & Pynes, Waterford, N. Y.; The Jos. Turner & Sons Manufacturing Company, Kent, Ohio; The Stearns & Foster Company, Lockland, Ohio; L. & S. Sternberger, Philadelphia, Pa.; Quaker City Dye Works Company, Philadelphia, Pa.; Sauquoit Silk Manufacturing Company, Philadelphia, Pa.; Star & Crescent Mills Company, Philadelphia, Pa; John Bromley & Sons, Philadelphia, Pa.; Horner Bros. Carpet Company, Philadelphia, Pa.; Powell & Bro., Philadelphia, Pa; Frederick Rumpf & Bro., Philadelphia, Pa.; J. B. Stetson, & Co., Philadelphia, Pa.; Firth & Foster Bros., Philadelphia, Pa.; Lackawanna Mills, Scranton, Pa.; Scranton Lace Curtain Manufacturing Company, Scranton, Pa.; Phœnix Woolen Company, East Greenwich, R. I.; Valley Worsted Mills, Providence, R. I.; John N. Stearns & Co., Petersburg, Va.; and the Old Dominion Cotton Mills, Richmond, Va.

The Company also have ready for distribution a reprint of the report of the engineer of St. Thomas, Ont., Water Works for 1892-3. The cut on this page shows the form of the filter with which they produce the splendid biological results detailed in the report reducing the bacteria from 45,000 per cubic centimetre to 90 per cubic centimetre. In commenting upon this, the New York Filter Company say: "The advances made in the art of filtration within the last two years are mainly biological and by our system of coagulation, which is covered by patents, the results, as produced in St. Thomas, can be brought about in every city of the country, making the water supply of such city absolutely safe against the scourges of typhoid fever and cholera, and at a very small cost, as the report shows.

"Many cities and towns are now enjoying the blessings of pure water, through the merits of our system of purification. Twelve of these cities have been obliged within the past two years to enlarge their filter plants, owing to the increased number of consumers secured after filtered water was furnished, thus proving the filters to be a source of revenue."

The New York Filter Company will gladly furnish all further information. They can be addressed at their office, No. 145 Broadway, N. Y.

Recipes for Dyers.

LILAC GREY ON WOOLEN YARN.

For 100 lb. woolen yarn.—Mordant by boiling 1 1-2 hours in a bath of 2 lb. bichromate of potash and 1 1-2 lb. tartar. The dyeing is done in a fresh bath of 3 oz. Alizarine Blue SW, 3 1-2 oz. Alizarine Black SW, 1 1-2 oz. Alizarine Red WB, 1 pint acetic acid, and boiling for 1 1-2 hours; then lift, wash and dry.

SILVER GREY ON WOOLEN YARN.

For 100 lb. woolen yarn.—The dye-bath is made with 10 lb. Glauber's salt, 5 lb. bisulphate of soda, and 2 oz. Anthracite Black B, working at the boil for an hour.

DARK SALMON ON WOOL.

For 100 lb. wool.—Prepare a dye-bath with 1-4 lb. Ponceau 2R, 1 oz. Milling Yellow O, 2 lb. sulphuric acid, and 4 lb. Glauber's salt.

HELIOTROP ON SILK.

For 10 lb. silk.—The dye-bath is made with 1-4 lb. sulphuric acid, 2 drams Patent Blue, and 1 1-2 drams Rhodamine; work at a gentle heat to shade, lift, rinse and dry.

WINE-RED ON HALF WOOL.

For 100 lb. half-wool goods.—Prepare a dye-bath with 2 lb. Diamine Violet N, 1 1-2 oz. sulphonazurine, and 20 lb. Glauber's salt; work, and then boil for an hour; allow to cool, add to the bath 2 lb. Rhodamine B, and 2 lb. Diamine Scarlet B; work again for 1-4 to 1-2 hour, at 100 deg. F. to shade; lift, wash and dry.

COPPER RED ON COTTON.

For 100 lb. cotton cloth.—Prepare a dye-bath with 15 lb. common salt, 3 lb. Carbazol Yellow, 2 oz. Direct Yellow 2R, 3 oz. Diamine Fast Red F, and 3 4 oz. Diamine Black BH; work at the boil for an hour, then wash and dry.

ORANGE BUFF ON COTTON.

For 100 lb. cotton.—Prepare a dye-bath with 5 lb. common salt, 1 8 oz. Direct Blue B3, 4 oz. Direct Orange 2R; work at the boil for an hour.

PALE SEA GREEN ON SILK.

For 10 lb. silk.—Prepare the dye-bath with 1-4 oz. Patent Blue, 1-12 oz. Orange G, 1-25 oz. Bordeaux S, 1-10 oz. Acid Yellow, 1-4 lb. sulphuric acid, working at the boil.

SLATE GREY ON WOOL.

For 100 lb. wool.—Prepare a dye-bath with 1 2 lb. Sulphon Brown R, 1 lb. Sulphocyanine 3R, 1-2 lb. Chrysophenine, 5 lb. acetate of ammonia; work at 180 deg. F. to shade; wash and dry.

DARK MAHOGANY BROWN ON COTTON.

For 100 lb. goods.—Prepare a dye-bath with 10 lb. common salt and 3 lb. Benzo Brown BX. Enter the goods at 180 deg. F., heat to boil, and dye boiling for an hour.—[Dyer and Calico Printer.

Correspondence.

ALBANY, N. Y., March 26th, 1894.

To the Editor:

Dear Sir. Kindly dye the enclosed shade. I do not mean near to it, but just like it. If you can do it, I will subscribe to your journal.

Yours respectfully,
JAMES HOLROYD.

We do not match samples free for non-subscribers, nor should they expect it, as time is money, and life is short. When we are doing work for subscribers it is part of our regular business; when we do work for outside parties, we charge $5 to $10 for each recipe according to the time it takes to do the matching, just the same as any chemist or dyer would do. The TEXTILE WORLD is worth its subscription price to any manufacturer or dyer, and consequently, we fail to see the force of Mr. Holroyd's offer.—[ED.]

OREGON CITY, March 10th, 1894.

To the Editor of Dye Department:

Dear Sir. Will you kindly let us know where we can purchase chloride of aluminum used for bleaching purpose, or if not too much trouble for you, will you oblige us and request some house dealing in such, to send us lowest quotations for cash.

Your favor will be much appreciated.

Yours respectfully,
OREGON CITY MFG. CO.

Roessler & Haslacher, 78 Pine street, New York, sell chloride of aluminum. Chloride of aluminum is good for carbonizing, but we did not know it could be used for bleaching.—[ED.]

No. 273 Neutral Scarlet G.

We have received a circular from Messrs. A. Leonhardt & Co., of Muelheim-on-Maine, near Frankfort-on Maine, Germany, which states that they are introducing a new neutral scarlet, which is well adapted for half silk dyeing, or cotton printing, where steaming is required.

Neutral Scarlet G is dyed in the same way as all the other basic dyestuffs. Its fastness to washing is like that of saffranine.

CHAS. R. EARLE, Pres. and Treas. M. W. GARDINER, JR., Sec'y
AMOS. W. C. ARNOLD, Agent.

PHENIX IRON FOUNDRY, Providence, R. I. Manufacturers of

Calenders, Starch Mangles, Calender Rolls of Paper, Cotton and Husk,

Bleaching AND Dyeing Machinery

Printing Machines, Shafting, Pulleys, Gearing, Hydraulic Presses, Tenter Drying Machines, Ageing Boxes, Expansion Pulleys, Hollingworth Automatic Feed, Can Drying Machines, Grate Bars, Cloth Cutting Machines, Silk, Lace and Cotton Finishing Machinery,

and Sole Manufacturers of NAGLE POWER FEED PUMP.

Send for Catalogue.

LINCOLN & COMPANY,

MANUFACTURERS OF IMPOVED MACHINERY FOR

Bleaching, Dyeing, Drying and Finishing.

Sole Makers for the United States of

Mather & Platt's Patent Self-feeding Tenters.

Complete Plants for

BLEACHING, ANILINE BLACKS AND INDIGOS.

54 to 70 Arch Street, - HARTFORD, CONN.

THOMAS JACKSON

MANUFACTURER OF

Bleaching and Dyeing Machinery,

Calenders, Starch Mangles, Hangers, Shafting, Pulleys and Gearing.

225 DYER STREET, PROVIDENCE, R. I.

COPPER PRINT ROLLERS AND SINGE PLATES

For CALICO PRINTERS and DYERS.

Best of Workmanship, Quick Delivery and Bottom Prices.

New Bedford Copper Co., New Bedford, Mass.

ESTABLISHED 1847. INCORPORATED 1890.

JOHN HOPE & SONS

ENGRAVING AND MFG. CO.,

Engravers to Silk, Calico, Oil Cloth, and General FABRIC PRINTERS.

—BUILDERS OF—

Pantagraph, Mill Engraving and Grounding Machines,

Turning Off, Polishing and Dead Center Lathes, Clamps, Die Blocks, Diamond Points Zinc, Gravers, and other Engravers' Supplies.

STEEL AND COPPER PLATE RULING MACHINES.

ELMWOOD, - PROVIDENCE, R. I.

Established 1788.

JOSEPH OAT AND SONS,

232 Quarry Street, PHILADELPHIA, PA.

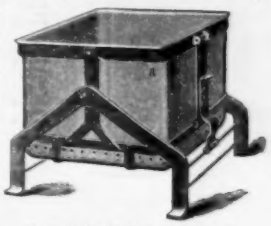
MANUFACTURER OF

Copper Dye Vats, Vacuum Pans,

Steam Cylinders, Logwood Extractors,

And all kinds of copper work used in dyehouses and chemical laboratories.

CHAS. BRABENDER. Telephone, 240. CHAS. BRABENDER, JR.



Copper Swing Dye Tank in Iron Frame.

Chas. Brabender & Son,

Paterson Copper Works,

Manufacturers of

COPPER WORK FOR DYERS,

Silk Finishers, Chemical Works, etc., Vacuum Pans, and Copper Apparatus for Logwood Extract Mfrs. Jacket Kettles, Varnish Kettles Steam Coils in Copper and Iron. Estimates furnished to all parts of the country.

GUN MILL YARD, PATERSON, N. J.

NEW ENGLAND

Ventilating & Heating Co.

From 1 to 6 ft. in Diameter.

Our system of Ventilating and Drying by air circulation will improve quality and increase production.

Plans and Estimates on Application.

OFFICE AND WORKS:

926, 928 & 930 Manton Ave., Providence.

HYDROMETERS, THERMOMETERS, STEAM GAUGES,

QUEEN & CO. Incorporated.

1010 CHESTNUT ST., - PHILADELPHIA

METAL SKYLIGHTS

Absolutely no leakage from any source; no dripping or sweating; fire-proof; ventilating.

THE CLOVER LEAF

VENTILATOR

FOR MILLS, FACTORIES AND DYE HOUSES.

Made of galvanized iron or copper. Strong upward draft; exhausts foul air, odors, gases, steam, etc. Perfectly storm-proof. Send for illustrated circular.

E. VAN NOORDEN & CO., 288 Harrison Ave., BOSTON, Mass.

CORCORAN'S TANKS, VATS AND DYE TUBS ARE PERFECT

Of either Cedar or Pine, Oak or other woods. Bands fitted with **Adjustable Lugs** and **Draw Rods** with friction plates. Over 200 sizes. Send for information.

STORM DEFYING **WIND MILLS**

Most durable, always satisfactory. They are working in every country on earth.

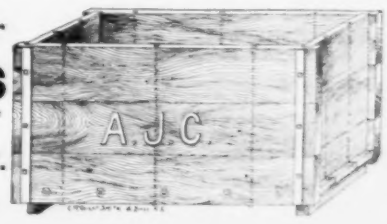
OFFICE AND SALESROOMS:

11 JOHN ST., N. Y. CITY.

FACTORY:

Jersey Ave. and 13th St., JERSEY CITY.

Telephone 238 Jersey City.



SCOTT & WILLIAMS,

ESTABLISHED 1865.

Builders of all kinds of Knitting Machinery.

NEW SELVEDGING BAR STITCH MACHINE.

FOUR PROCESSES AT ONCE.

Selvedges the Edge, makes and attaches the Trimming and inserts Ribbon at one operation.

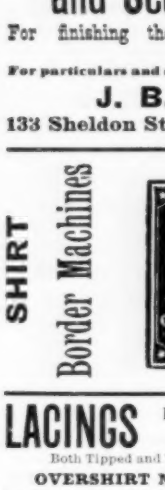
RUNS AT SPEED OF 2000 STITCHES PER MINUTE.

The United States Circuit Court for the Eastern District of Pennsylvania has recently issued a decree sustaining our Patents on this machine and on the Trimming made by it, and has granted an injunction against manufacturers in Philadelphia who were using an infringing machine. The attention of the trade is therefore directed to this decision, as we shall proceed promptly against any others who violate our rights by the manufacture, sale, or use of infringing machine or trimmings.

Patented, United States, Dec. 25, 1888. Patented, United States, Aug. 20, 1889. Patented, United States, Sept. 3, 1889. Patented, United States, Nov. 26, 1889. Patented, England, January 1, 1889. Patented, Switzerland, May 17, 1889.

OFFICE: 2077 East Cumberland St., PHILADELPHIA.

SHOWROOMS: 6th and Arch Sts., Philadelphia, Pa., and 116 Bedford St., Boston, Mass.



Pepper Manufacturing Co.

Lakeport, N. H.,

Manufacturers of

Knitting Machinery,

INCLUDING

Pepper's Flat-Ribbed Cuff Machine,

Automatic Welt and Loose Course Machine for Sock Tops. New Circular Stripes with Welt, Loose Course and Striping (Automatic), for Shirt Cuffs, Sock Tops, Hose Legs, Wristers, etc.

All kinds of

CIRCULAR RIBBED MACHINES,

For Men's Underwear, Ladies' and Misses' Hose Legs & Legnigs.

CORRESPONDENCE SOLICITED.

THE

Merrow High Speed Crochet and Scallop or Shell Machines.

For finishing the edges of Knit Goods, Bed Blankets, Horse Blankets, or other fabrics.

For particulars and samples, address

J. B. MERROW & SONS,

133 Sheldon St., HARTFORD, CONN.

SHIRT Border Machines

Cuff Machines. Four and five Section Flat

LACINGS For Overshirts and Underwear,

Both Tipped and Tasseled, and

OVERSHIRT NOVELTIES.

For Samples and other information, address

HEPNER & HORWITZ, 84 Leonard St., N. Y.

WE NEED NO SPECIAL POINT

To prevent the needle from picking up the brass, nor special mechanism to prevent injury to the brass, for the needle in our looper never strikes anywhere but the centre of the point.

HEPWORTH & CO.,

Lehigh Ave. & Mascher Sts., Phila., Pa.

Knitting Machinery, New and Second hand. Goodyear & Taylor Pat. Stop Motion for Ribbers and Underwear Machines.

JAMES TAYLOR,

(Successor to Walter Snyder.)

No. 835 ARCH STREET,

PHILADELPHIA, PA.

THE PENNINGTON NAPPER

For Circular Rib Machines.

Simple, Durable and Effective. Quickly applied to any Circular Rib Machine. For particulars address,

W. STAFFORD & CO., Little Falls, New York.

Franz & Pope Knitting Machine Co.,

BUCYRUS, OHIO.

ESTABLISHED 1866.

Original builders of Seamless Knitters.

WE STILL LEAD!

KNITTERS

Automatic Seamless Knitters, Loopers, Steam Presses, Hosiery Brushing Machines, Ribbers, Mitten Machines, etc.

CHICAGO OFFICE: 1001, Ellsworth Bldg. 353 Dearborn St.

Complete Hosiery Mill Outfits. Builders of Knitting Machinery for Special Purposes.

ALL MACHINES GUARANTEED.

KNITTING DEPT.

KNITTING MACHINE CYLINDERS.

PAXTON & O'NEILL,

129 Bread Street, - - - Philadelphia, Penn.

Originators of the Weldless Forged Steel Cylinder. Cylinders and Dials, all sizes up to 24 inch, for the different Circular Rib Frames, Seamless Knitters, etc. The Finest that can be cut, and the Best as to Material Accuracy and Durability.

The Knit Goods Situation.

Many manufacturers are still finding orders so scarce, that is, satisfactory orders, that it seems almost nonsensical to talk of any improvement in business, yet the indications clearly point to better existing business than we have had for many weeks. Buyers have been forced by pressure from the retail end to come into the market for certain lines of popular medium goods, more freely and with a degree of anxiety during March. But they have all along been so tardy in placing orders with the mills and now, notwithstanding their anxiety to be accommodated, are so reluctant about placing orders for quantities which it might pay to book, that many agents are absolutely refusing to start their machinery even though prices offered are satisfactory.

This is especially the case in instances where mills have gone to additional expense in getting out samples and have made anything like departures in their lines.

There are some few knitting mills in this country owned by parties more chiefly interested in some other line of business, many of them mills started in the boom period of a few years ago, which mills have been especially forward in refusing what they considered paltry orders. They are generally mills ranging in size from six to twenty or even more machines. One in particular, a New England mill we know, manufactures a very nice line of cotton, woolen and worsted ladies' vests. Many of the mills making only staple goods have also taken the same stand in refusing to start on small orders.

Between this position taken by the manufacturers and a real demand being found by retailers, buyers have been placing more duplicate orders lately.

There is a class of men who are always ready to grab, as it were, every thing that comes to them in the shape of an order; such agents are now quite busy.

RETAILER'S STOCKS.

From the above it will readily be seen that we find spring business among the mills in a peculiar and unsatisfactory condition.

There never was a time when the underwear and hosiery market was so bare of goods. Eastern and Southern merchants are especially short of all lines of knit goods.

The West also is, and particularly on lumberman's heavy goods. It is believed, however, that there is a very full stock of ordinary heavy underwear in and around Chicago, as the result of over stocking last season, which will not admit of much being done in that locality on fall goods.

The period when duplicate orders are ordinarily plentiful has well arrived, and in fact is nearing the close with such mills as manufacture the better grades of both light and heavy goods in their season, yet the total production of spring underwear and hosiery in American mills, as well as the total importations from Europe, has fallen short, very far short, of the usual demand.

Retailers and jobbers have found that the supply of goods for even this present season is much shorter than the actual demand. Jobbers figured altogether too much on the backwardness of trade and depressed conditions in the early part of the season.

The only way now left for those jobbers who are determined to be well supplied throughout the summer, and to be ready to supply every demand their competitors find it hard to fill, as well as to stand ready for an early spring next season, which is likely to be on account of this very shortage, is to make the inducements sufficiently strong to certain individual agents, to have them give their attention for the next few seasons altogether to light weight goods. This some mills are prepared for.

COWARDICE IN BUYING.

Not one buyer in twenty placed orders with the mills during the past two seasons for as large amounts as they were usually wont to do. This of course has been the result of a wise discretion, of commendable business policy; for in the face of the great depression which has affected all classes of people, any other methods of buying would be of the same character as those of the speculator on the stock exchange.

This conservatism has in very many cases been carried to the worst extremes, however, and most of the buying has been shamefully weak.

Short buying has been carried during the past few seasons to the extreme of actual cowardice. The shoe, which has all along been causing pain to the manufacturers, is now forcing both jobbers and retailers to limp.

This cowardice in buying has also had, during the present spring, many illustrations in the silk ribbon trade.

Moiré ribbons are a great rage this season, and dressmakers and milliners and retailers find it actually impossible to please their customers, they are so short of assortments. They had put off buying from either importers or domestic houses till late, and they were then overtaken, to their own great loss, by the strike of the ribbon weavers on this side of the water.

The buyer who has the capital to do his business and who exhibits this form of moral cowardice, is not a fit man to have in charge of a department. But he considers always that he is on middle ground.

FALL TRADE.

Fall trade, in hosiery as well as in under-wear, is slow in opening, and although great expense has been gone to in the work of getting out samples, and finer and more improved goods are shown on every hand, yet agents find it hard to bring buyers down from their high Micawber-like roost.

If buyers would take a course in politics and adopt a little of the "get up and get" methods of that profession, they complain of for "ruining the country" they can bring to both themselves and the domestic manufacturers a very profitable trade this fall.

While it is not the general policy of American knitting manufacturers to sell their own goods, yet it certainly does does seem that the mills which do sell direct will and do fare the best in seasons like this.

This watching for the outcome of the tariff has become tiresome. Every factor concerned in the distribution of goods, should take the practical risk of considering tariff questions as hid in oblivion, until, by actual enactment, the thing becomes a living fact. Mammals sometimes die before they see, or come into existence so deformed that they are incapable of action. Bills and bulls are not unlike them.

Tariff or no tariff, depression or no depression, it would seem that there will be no great risk in underwear mills making a little extra heavy goods for stock this summer.

INFANTS' UNDERWEAR.

Infants' underwear is one line which has been doing somewhat better than the rest all through this dull period.

Baby, ever since the world started, and up to within but a few years, has been clothed in every detail, and especially in the matter of his little underclothing, by the kind solicitous hands of loving admirers. At least, whenever the garments have not been made for one certain little joy in particular, they have always been turned out by the hand knit workers.

Of quite recent years, however, the power knitting machine has been brought into play, and every detail of the work is receiving the greatest attention; until now manufacturers are looking around for special machinery for the work—full fashioned, regular made. Poor little dear, since humanity started you never had any shape but what was unshapely, yet that is what your modern papa, who may happen to be a knit goods manufacturer, is looking for—infants' highly fashioned underwear machinery.

DOMESTIC HOSIERY.

The condition of business in the hosiery trade will best be understood when we declare, as is the case, that trade corresponds exactly to the different qualities manufactured, or nearly so. Business is in a very poor state on classes of poor, cheap hosiery, whether cotton or woolen, and is correspondingly better, not in prices alone, but in the amount of orders on all classes of better grade goods.

Advance orders in the season's goods in woolen hosiery are very backward, and there is nothing doing to speak of on duplicate orders, although the goods shown in nearly every instance are an advance in quality and outside appear-

NYE & TREDICK,

MANUFACTURERS OF PLAIN AND AUTOMATIC

Circular Rib Knitting Machinery

For Knitting Ribbed Shirts, Drawers, Tights, Combinations, Skirts, Jackets, Caps, Bicycle and Athletic Suits, Hosiery, Shirt-Borders, Cuffs, Etc.

Auxiliary · Machines · and · Supplies.

Sewing, Crocheting and Finishing Machinery, Seamless Knitters, Winders, Loopers, Presses and Shaping Boards; also, Engines, Boilers, Shafting and Pulleys.

606 Arch Street, - PHILADELPHIA, PA., U. S. A.

CHICAGO OFFICE, 18-30 W. Randolph St., CHICAGO, ILL.

Estimates Given for Complete Equipment of a Knitting Mill.

Why do Knitting-Machine Builders Try to Produce a Machine to Make a

BRANSON SOCK?

JAS. L. BRANSON,

506 St. John St., Philadelphia.

Is the original inventor and manufacturer of this class of Machines, and, like most originators, manages to keep ahead of all imitators. Send for Circular A.

ance on the goods of any previous season.

In cotton hosiery the demand has lately improved very much, and particularly on high class domestic goods. In medium and high priced staple goods, in lisle thread goods and in French foot, and silk heel and toe hosiery, the demand has improved and is now quite good.

COLORS IN MEN'S HALF HOSE.

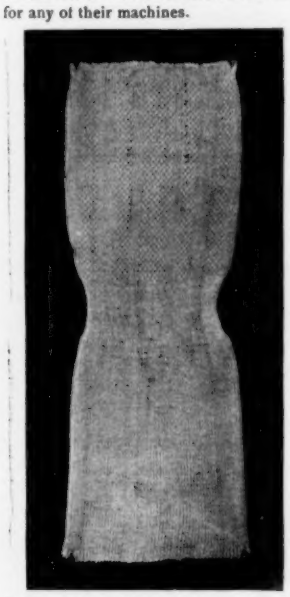
Many novelties in the way of shades and colors in men's half hose are exhibited over retailers' counters this season. These novelties are foreign goods and are in good demand. Noticeable among them are solid cardinals, several beautiful shades of dark green and blues. On the hosiery of these two latter shades, the heel, toe and ribs are black. Another is where the rib, toe and heel are yellow, and the rest of the sock mixed yellow and black, giving a golden brown effect.

The Leighton Knitting Machinery.

IMPORTANT NEW FEATURES.

On March 31st, 1894, the knitting machine business of Geo. A. Leighton, Manchester, N. H., was incorporated under the name of Leighton Machine Co., with Geo. A. Leighton, president, A. B. Dodge, treasurer, J. H. Rice, superintendent. This change was made with the view of increasing the capacity of the works for turning out machines. Mr. Leighton has neither advertised or solicited orders for machines for some years past, as it has been impossible to turn out any more machines than were called for.

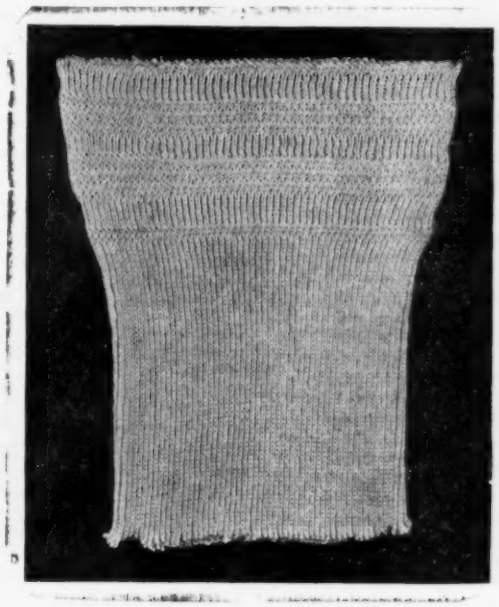
Under the new arrangement it is expected the firm will cover a greater territory with their business, and be able to turn out within reasonable time, orders for any of their machines.



FASHIONED LADIES' VEST AS KNIT, CUT FROM WHOLE WEB, SHOWING FANCY KNIT BUST PORTION.

One of the first results will be the putting on the market of several new improvements that will be of interest and value to the knitting trade, and we show herewith some of the product of special patented features for making goods not possible heretofore, and which are of such a radical departure from the work usually done on circular frames, that we deem it of interest to illustrate.

Our first illustration shows a regularly *fashioned* ladies vest as knit, with the novel feature of a *fancy knit* bust portion to the garment. This fancy knitting can be carried throughout the garment or knit into any portion of the same, back, front, top or bottom as desired by the designer. The combinations of the styles of fancy stiches are apparantly endless; all such combinations as have been made thus far, show desirable features, and should so improve the line of ribbed underwear as to materially increase the trade of our manufacturers to the detriment of imported goods.



SWEATER COLLAR, AUTOMATICALLY RACKED, CIRCULAR.

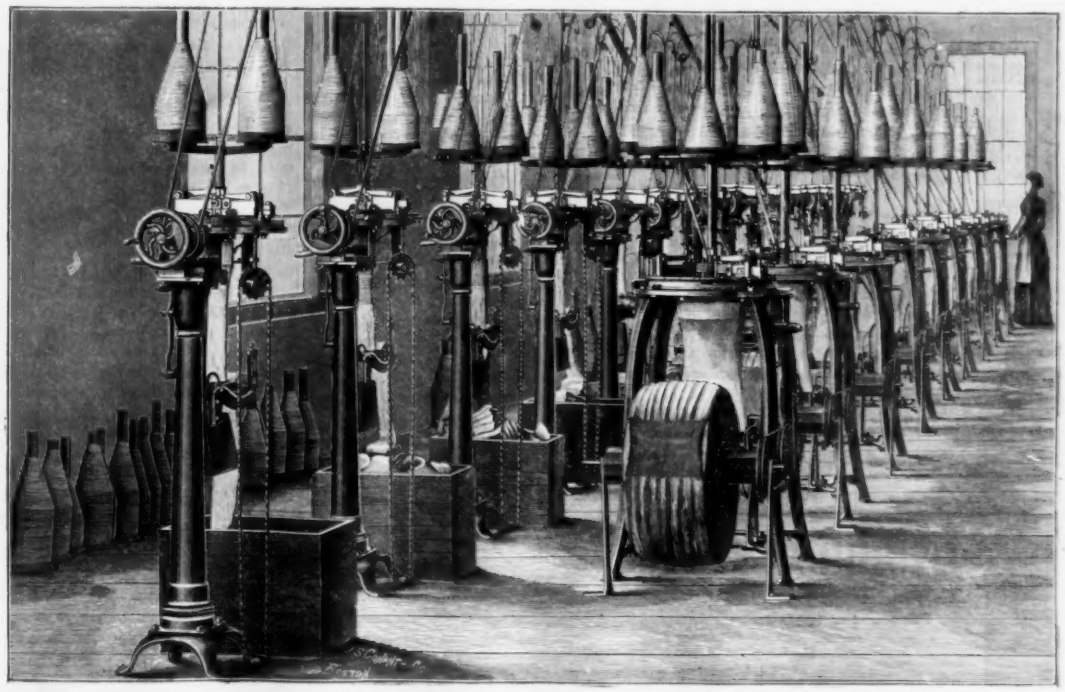
The fancy figures made by these improvements can be applied to the Swiss ribbed goods used for summer wear, or to the heavier tucked stitch garment in winter grades, and many of them would seem to be specially desirable for the extra light-weight goods used for infant's wear.

This one feature—the range in weight of yarn—in the Leighton machines, many manufacturers not using them, probably do not understand. For instance, yarns from 2/32 to single 40 worsteds are readily knit on the same machine, making heavy or light goods as desired.

Another new article of production made possible by these improvements, will be the making of *circular racked sweaters* and *collars* for the same. A variety of racked combinations can be made and as the machines are automatic, working continuously, they will turn out 40 to 50 doz. collars a day, and being circular they need no seaming up on the sides. One of these racked collars is shown in the illustration. This automatic racking feature will no doubt be applied to many uses; possibly collarettes for underwear, and cuffs for mittens and gloves will be used for the product.

In the large illustration is shown a section of a knitting room with the Leighton machines in operation, showing that the fabric as knit is in full view from the moment it leaves the needles; afterwards being wound on rolls, which can at any time be removed for finishing without interfering with the operation of the machine.

The positive antomatic stop motion on these machines is an improvement of interest to all knitters, enabling them to handle and operate more machines with less help; 50 sleeve machines have been successfully kept in operation by only two boy knitters.



VIEW OF SECTION OF A KNITTING ROOM SHOWING LEIGHTON MACHINES IN OPERATION

BRINTON, DENNEY & CO.,

Builders of a Full Line of

CIRCULAR RIB AND SEAMLESS Knitting Machinery,

For Underwear and Hosiery.

213 and 215 RACE ST.. - PHILADELPHIA.

Novelty Knitting Machine Co.,

MANUFACTURERS OF

AUTOMATIC CHECKERS, VERTICAL STRIPING MECHANISM.

SPRING NEEDLE KNITTING MACHINERY,

AND OTHER NOVELTY ATTACHMENTS

BURR WHEELS With Removable Hardened Wings, Shafting, Hangers, Pulleys, Etc.

F. L. WIGGIN, Proprietor, LOWELL, MASS.

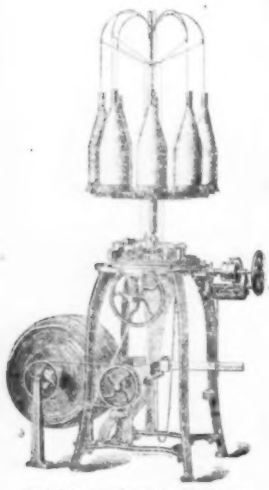
Dissolution of Partnership.

Mr. Harry P. Cooper has sold his interest in the firm of Brinton, Denny & Co. to the remaining partners, Henry Brinton and Barclay M. Denney, who will continue the business of manufacturing knitting machinery under the same style and at the same place as heretofore, 213 and 215 Race Street, Philadelphia.

—W. H. Birtwistle, formerly of Slatersville, R. I., has accepted a position as overseer of spooling and warping with the Harris Mfg. Co., Phœnix, R. I.

—W. E. Touchstone resigned his position as superintendent of the Camperdown Mills, Greenville, S. C., and accepted a similar one with D. L. & J. A. Lewis, Sycamore, Ala.

—Ben Nuttal is now overseer of carding in the Atherton Cotton Mill, Charlotte, S. C.



Leighton Automatic Machines.

THE LEIGHTON MACHINE COMPANY,

MANCHESTER, N. H.,

SUCCESSORS TO GEO. A. LEIGHTON, MANUFACTURING

Circular Power Knitting Machines,

WITH INCREASED FACILITIES, IMPROVED

SPECIAL and AUTOMATIC MACHINE TOOLS

Will be able hereafter to take care of and fill all orders for machines, with promptness and satisfaction, and in

Soliciting the Trade of Ribbed Knit Goods Manufacturers,

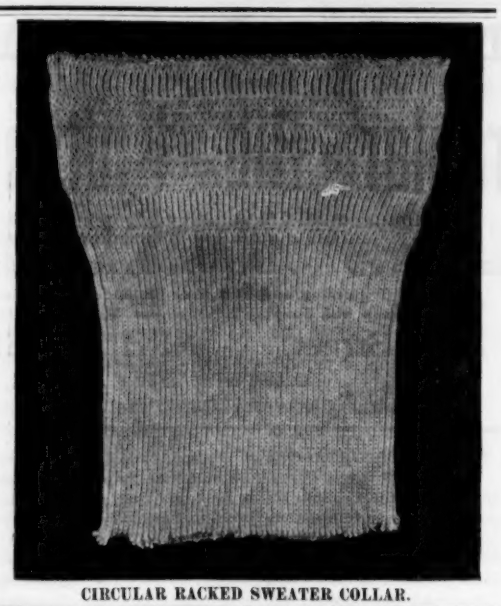
Would remind them that we have to offer several improved products, that cannot be successfully knit **Except on the Leighton Machines** and under the **Leighton Patents.**

IF YOU WISH TO IMPROVE YOUR LINE OF

Underwear, Jackets, Sweaters, Leggins, Etc., or to start a mill for the manufacture of these goods correspond with the

LEIGHTON MACHINE CO.,

Manchester, N. H.



CIRCULAR RACKED SWEATER COLLAR.

CHAMPION SEWING MACHINE COMPANY, REMOVED to 1819 North Fifth, and 1822-26 Manor Streets, PHILADELPHIA.

Also New Champion Crochet Machines, sewing, hemming, machines, etc. Send for descriptions.

Rib Knitting Machines of all Kinds.

BUYERS AND MANUFACTURERS OF

UNDERWEAR, Jerseys and Cardigan Jackets,

will serve their own interest by investigating the merit of the "NEVER RIP" SEAM. All single-thread stitches have proven to be unsafe. A lock-stitch is not sufficiently elastic. A STRONGER AND MORE ELASTIC STITCH is now required.

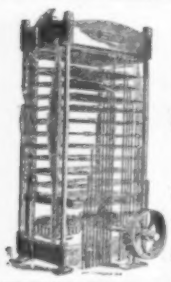
THE UNION HOSIERY MACHINE

Makes a SAFE, ELASTIC, TWO-THREAD STITCH that will not rip.

For circulars, with full particulars, address the

UNION SPECIAL SEWING MACHINE CO.

47 Leonard Street, New York;
60 Michigan Street, Chicago, Ill.



THE CRAWFORD Hollow Plate Steam Press

For Knit or Woven Goods.

Is worth investigating

J. J. Crawford & Son

Nashua, N. H.

CRANE MFG. CO.

LACONPORT, N. H.

Spring Needle Circular Knitting Machine

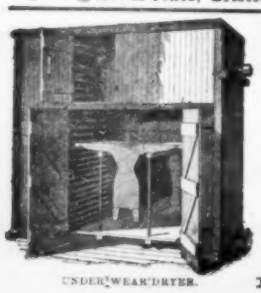
For Hosiery, Shirts, Drawers, Jersey Cloth and Stockinet.

A Specialty of Hardened Bladed Burr Wheels with Self Oiling Brackets.

The BALLOU Automatic Ribbed Knitting Machine

Built with **Sectional Cam Ring** and the most perfect **weight take up.** Best, Strongest and Most Durable Machine. Send for Price List.

Lewis Jones, Bristol, Pa.



UNDERWEAR DRYER.

Cyclone Dryers

—FOR—

Stockings, Underwear, Stock, Yarns, Cloth, Etc.

Textile Machinery and Shafting Work.

PHILADELPHIA TEXTILE MACHINERY CO

Hancock St., above Lehigh Ave., PHILADELPHIA, PA.

"Old Supt." on the Road.

DAYTON, O., Mar. 26, 1894.

Since writing you last, I have visited a number of the largest cities in the West, on the Ohio River from Louisville, Ky. to Cincinnati, O., and must say frankly that up to date the trade in these places is the same as I wrote in my last. Some jobbers will tell you it is the worst they ever experienced, and others are a little more reserved, and will ask how you find things. If you say you cannot complain, they will answer and say they are glad to hear it, and trust it will continue, for they have had bad enough trade.

I have many times within the past six weeks asked them the state of things, and the answer would be occasionally, "We have some orders from country towns, but when they purchase they don't buy one third as much as usual, or as they do other years." The result of all this is that the jobbers are doing the same thing, and are not the least afraid but what they will get all they want when they need.

I have tried to reason with many, and ask them this question,

"How are you going to get what you wish unless you order soon, for it will soon be three months past the usual time and if the manufacturers don't start up their mills until they receive orders, how can you get your goods? They are not going to be fooled so much this season as they were last, rushing to fill orders, and after running over time, and some all night, in order to supply the demand, and having as many of them thought, No. 1 contracts, have them cancelled, beginning some as early as July and August?" To use an old expression, "It is hard to catch a bird twice with chaff," or "A burnt child dreads the fire."

I find out that stocks are low in jobbers' hands, and they must be replenished ere long. Some buyers will hold off, because they have got into a habit of doing so, but it is the business of all houses to sell goods, and they must have them to keep up stocks now reduced, and attractive in all lines. Consumption is constantly going on, and each season brings out something new, and improvements over old styles.

As salesmen go out to sell, and have their samples with them, it is a very easy matter for buyers, and to their benefit, to look them over, and have the satisfaction of knowing that nothing has escaped their attention.

It is strongly evident that all the anticipated ill effects of the proposed tariff legislation have been discounted in nearly every line, and nearly all believe that goods are selling as low as they are likely to for some time, and the only way that I can see for goods to ever sell any lower must be to cut down the wages of the workmen, and then trouble begins, which has been the case in many places already, for the working man in general has little enough at any time. It is a pitiful sight to see so many thousands out of employment in nearly all the cities I have visited, who are willing and able to work, if they can get it to do. In Chicago I saw long lines of men standing in file waiting for orders, where they are going to work for a few hours, so they can have a little to eat, and I said to myself how good and kind God was in sending that snow storm when he did, to alleviate the suffering of many, as thousands got employment for a number of days, cleaning the streets and carting away the snow.

There is not the least indication of speculation in any line that I have discovered, and everything points to light stocks in retailers' hands, with a few exceptions. The jobbers are still holding back, only doing a light business, but I am happy to say that the jobbing trade is better in Cincinnati than in any of the Western cities I have visited in five weeks, and when I went around the houses, I found them with pleasant smiles and a cordial greeting to all runners, and with few exceptions, doing a fair business, and some of them had no complaints to make.

There is no demand for any special line of knit underwear, but all that is wanted with the majority of the trade is cheap goods. I heard one sensible man say this: "Why do you manufacturers always try to make cheaper goods? Why not hold your goods at a firm price, and try to improve more and more on the manufacture of them, and not lower the price?" I told him he deserved a medal, he was so sensible. OLD SUPT.

(To be continued.)

Practical Talks on Knitting.

IV.

ARE CHEAP YARNS CHEAP.

Manufacturers of hosiery goods seem to be driven further and further into the need of using cheap yarns on account of competition and various other conditions which did not exist some years ago, but do now. The average manufacturer does not spend as much time in the knitting department of his mill as one might suppose. He gives more attention to purchasing yarns and to the finished goods than to the details of the knitting process. Consequently much can happen in the knitting department that he is unaware of.

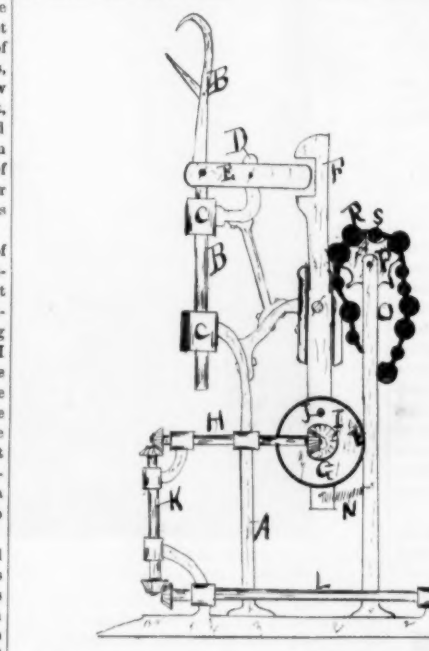
One thing that may happen is the wreckage caused by the use of cheap yarns. The manufacturer has, for instance, run across a lot of exceedingly cheap half woolen and half shoddy yarns, and these he has sent into the mill to be knit into hosiery.

The yarns are taken in hand by the knitters and at once the needles on the machines begin to break and a dozen other

DEFECTS OCCUR.

Cheap yarns are rough and the irregularities on their surface are very likely to cause frequent breaking off of the needle ends, thus causing delay as well as loss in the price of the needles.

Your correspondent has of late run across so many mills in which needles are snapped off by the hundreds simply as a result of uneven yarn, that it seems as if something should be said about it. If the manufacturer was aware of what he is loosing in broken needles, he would undoubtedly pay more for the yarns, thereby getting a better quality and saving the difference in needles.



A NEW KNITTING DEVICE.

In knocking about among the mills this month, I was shown a working model of a new kind of a needle movement for knitting machines. I made a sketch direct from this crude working model, and here it is:

WORKING MODEL OF A HOME MADE KIND.

This model was made by a knitting machine mechanic with the tools he happened to have at hand. Hence it is rough in appearance, but shows the principle all right.

First we have the upright *A*, to which are fixed the two bearings *C*, *C*, and in these is set the shank of the needle *B*. The rising and falling movement of the needle is obtained by having the lever *E* attached to the needle at one end as shown, while the other end of the lever sets in the slot *F* of the upright lever. The lever *E* is pivoted at *D*.

At *M* there is handle which the inventor turns, and this revolves the shaft *L*, which in turn gives motion to the shaft *K*, and this communicates movement to *H*, and finally to the gears *G*. As these gears are fixed to the plate *I*, it follows that the plate is revolved at each turn.

Set in this plate is the stud *J* which extends through into a slot in the upright lever *F*, thus an up and down movement is given the upright *F*. At *N* is a spring which tends to keep the lever in toward the stand to which one end is attached. This stand is marked *O* and at top of it is a chain *R*, and a cylinder for manipulating the same designated *P*. This chain is pretty much like a common harness loom chain. There are the balls *R*, and other parts.

Now when a ball contacts with the lever *F*, the same is pushed in as shown in cut and the notch at top fits over the lever *E* so that when the lever *F* is made to rise the movement is given to the needle, hence effecting the regular knitting motion. When a blank of the chain contacts with the lever *F*, then the latter remains away from the lever *D*, and no action takes place, and so the needle does not make a stitch that time. As there is a ball and set of blanks for each needle, it follows that any combination of knitting effects can be procured by arranging the chain. This is quite a novel method for securing various pattern effects.

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With bevel top for perfecting the stitch in the plain fabric and closing the gore in the heel and toe.

Automatic Ribbers, Loopers, Winders, Steam Presses, etc.

Keystone Knitting Machine Man'f'g Co.,
1716-20 NO. FIFTH ST., PHILADELPHIA, PA.

The Knitting Business in Portugal.

From an English Traveler.

LISBON, Feb. 24.

Editor Textile Mfg. World:

Please accept thanks for the TEXTILE MFG. WORLDS sent me. They contain much valuable information for merchants and manufacturers, also for the working people of the world.

Portugal as a manufacturing country is but slow and dull, for an Englishman or an American. The mills, working time is about as follows:

One-half hour is allowed for breakfast, one hour for dinner, no tea hour.

Jan. and Feb.	6	A. M. to	7	P. M.
March,	5:30	"	7	"
April and May	5	"	7:15	"
June and July	4:30	"	7:15	"
Aug. and Sept.	5:30	"	6:45	"
Oct.	6	"	8	"
Nov. and Dec.	7	"	8	"

Pay per day in the knitting mills.

Girls at the knitting machines, 80 reis, (8c.) 100 reis, (10c.) 120, (12c.) 150, (15c.) 180, (18c.) 200, (20c.)

Man who cuts out stockings, shirts, drawers, etc. 340 reis, (34c.)

Man who folds and papers the goods, 260 reis, (26c.)

Girls at the steam presses turning goods, 180 reis, (18c.)

Foreman knitter, a good useful man, 380 reis, (38c.)

This is very poor pay for such hours. The people have no push or go in them. They seem to say "come day, go day, God send Sunday," and no wonder.

There are but few factories in or near Lisbon. The people in Lisbon are paid more than in above list, but cost of living is much more than in the country places. Most of the people are paid by the day, with but little piece work, and what can be expected of people working such long hours on such little pay?

Goods are poorly finished and gotten up. They would not sell either in England or America, yet they bring high prices in the retail stores. The duty on all grades of cotton goods is the same. A man's common circular half hose weighing one pound, costing 2s. 1d. (50c.) must pay the same duty as one that cost 7s. ($1.75) per doz. The duty is 1500 ($1.50) reis per kilo (2 1-5 lbs) on all grades of cotton goods imported, about 75c. per pound. Most of the hosiery goods manufactured in Portugal are of the low class, and goods costing to manufacture 1s. 9d. and 2s. per doz. will sell in the retail store at 4s. 6d. and 5s. per doz.. so it is the poor people who pay the taxes, for it is impossible to import the medium and low class of goods. Thousands and thousands of the poor people never put on a sock or stocking. We cannot call this "a government of and for the people."

My opinion is that America has not yet got at the root of the evil of undervaluation. This is to be guarded very much by your consuls abroad. I would send consuls to such places as Chemnitz, Saxony and Nottingham, England, who understood hosiery, and who could, when an invoice was presented to him ask questions, such as, what class of goods are Nos. 1, 2, etc., and by what name are they known in the trade. Every article has its name, and if he would now and then collect sets of samples and prices as they are charged for home orders, and send these samples out for the New York appraiser to see, it would help him much to judge of values.

I would also suggest that the invoices give the trade names of each article, for I have found at Nottingham, Troyes, France, and Chemnitz, consuls who had not the least idea of values of the goods such as the invoices that pass through their hands call for. Until something is done to put the right consuls in their right places, no honest importer can do his share of business.

I explained these points myself to Mr. Cleveland and Mr. Bayard, during Mr. Cleveland's first term of office. They wished me to go out as consul, but, said it would be necessary for me to be an American subject. This I told them I was not disposed to do. I was born a John Bull, and whatever part of the world I might die in, I should die a John Bull. I could send you the papers that passed between us, if you wished.

All goods have a manufacturers' name, which never change, and are so entered on the day book. Then let those names be put on the invoices, and with a sharp consul, undervaluations would be few.

I give sample of present method of invoicing hosiery, also of how I think invoices should be made out:

No. 1.	100 doz. women's white cotton hose, price	3s.
No. 2.	100 doz. women's white cotton hose, price	6s. 1d.
No. 3.	100 doz. women's white cotton hose, price	8s. 6d.
No. 4.	100 doz. women's white cotton hose, price	12s. 1d.

I would have such invoiced as follows:

No. 1.	100 doz. women's white cotton hose, circular, 1 lb. 12 oz. per doz.	3s. 1d.
No. 2.	100 doz. woman's white cotton hose, circular, narrow heel and toe, 2 lb.	6s. 1d.
No. 3.	100 doz. women's white cotton hose, 30 gauge, best fashioned, 2 lb. 4 oz.	8s. 6d.
No. 4.	100 doz. women's white cotton hose, 36 gauge, best fashioned, 1 lb. 12 oz.	12s. 1d.

These are given their proper names, known to manufacturers all over the world. I saw by the American papers that it was proposed to charge duty partly on weight and partly on value. This would not do, as you will see No. 1 and No. 4 are the same weight, one costing 3s the other 12s.

Then again, machinery all pays same duty, 45 per cent. of value. Take for instance the best class of machinery, such as Cotton's Patent, for making best fashioned goods; machines of the same width and to all appearances the same, cost 33s. per inch, 35s., 63s. and 75s. I never knew an appraiser in New York who could tell the difference, although a machine will cost £189, ($415) £201, ($440) £362, ($793) £411, ($942) subject to duty. Each of these have their proper names, known to all builders and manufacturers. I have known very many of the £362 and £411 machines imported as the £189. I ask, why not see to this? What can the honest importer do?

I explained all this and much more to the Hon. T. F. Bayard in 1887. Men are appointed by favor, not for their fitness for their positions. This could be stopped if the right parties were sent out as consuls, with full power to insist on a proper description being given in every invoice, he to assist the appraiser with samples and advice from time to time. I have seen thousands of dozens of German goods pass at 40 and 50 per cent. under cost, and machinery as well.

By the way, I have a new process for bleaching cotton goods, and want to find the best way to dispose of same for America. To bleach any class of cotton hosiery or calicoes a good white within four hours without the use or cost of coal, as I do not boil them. The cost of material shall not be more than that used by regular bleachers, leaving out cost of coal, the goods shall lose less in weight, and be stronger when finished than goods bleached by any other process. This should be of value in the States.

AN ENGLISHMAN.

[If any feels interested in above, we shall be pleased to put them in correspondence with the writer.—ED.]

Pineapple Fiber.

While there are fortunes awaiting those who pursue with intelligence the pineapple fruit industry in Florida, there are larger ones in store for those who go into the manufacture of cordage, twines, fabrics, etc., from the fibre of the pineapple leaves. The completion of the Jacksonville, St. Augustine and Indian River Railway as far south as Palm Beach, brings the East Coast country close to the great market centres of the United States, and its products within forty hours of Washington, forty-two hours of Baltimore, forty-five hours of Philadelphia, forty-eight hours of New York, and sixty hours of Boston, by fast freight. So capital will naturally seek that region for investment, and fibre factories are assured in the near future.

The fibre of the pineapple plant is nearly fine enough for textiles of the linen class. It is the next thing to flax. Charles Richard Dodge, special agent of the department of agriculture for the investigation of fibre, made December 7th, last, the following statement:

"Our experiments in Florida with this fibre were only preliminary to ascertain how much fibre the leaves contain and whether the fibre was sufficiently good in quality to make it advisable to carry the experiment further. I demonstrated the latter point to my satisfaction before leaving Cocoanut Grove.

"I do not think that the leaves are of any value to the plant after the fruit has been removed, as they would soon perish anyway. It becomes a question then, first, of the expense of harvesting the leaves, and secondly, of the economical cleaning of the fibre. It seems to me that the real obstacle to the success of the industry at the present time is the need of a cheap means of reducing the leaves to fibre. I have been thinking that possibly we may have to drop the machine idea altogether, owing to the smallness of the leaves, and substitute a process.

"The fibre is too good for cordage and bagging manufacture. More suitable fibres can now be obtained for such purposes at four to five cents per pound. Pineapple fibre should fill a place nearly flax, and its use would be for fine twines, the backing of brussels carpets, fabrics and possibly for upholstery manufacture (coverings and hangings), and it should bring a much better price than the mere cordage fibres. And in future experiments enough fibre should be secured to give manufacturers an opportunity to try the product, and if possible develop a use for it. With a large acquaintance with fibre men and manufacturers this could be readily brought about.

Personals.

—Andrew Schouler, formerly with the Harris Woolen Mill, Woonsocket, R. I., has been engaged to superintend the newly built woolen mill of the Tarascon Woolen Co., at Louisville, Ky., which will start up in May.

—George W. Daugherty, formerly superintendent of the Victor Cotton Mill, Charlotte, N. C., has accepted a similar position with the Chester Mfg. Co., Chester, S. C.

—Henry S. Hawthorn, manager of the Appleton Knitting Co., Appleton, Wis., died at that place aged 76 years.

—Mr. Gaffney has withdrawn from the firm of Morgan & Gaffney, cotton manufactures, Double Shoals, N. C.

—Charles I. Lincoln, who was formerly superintendent of the Pomeroy Mills, Pittsfield, Mass., and who lately had charge of a mill in Maine, will resume his old position in Pittsfield.

—William H. Norris, who lately resigned as superintendent of Stanley Creek Mills, Stanley Creek, N. C., is now travelling for the Ohio Oil & Grease Co., Cleveland, Ohio.

—Douglas W. Hyde, second hand of dyeing in Beoli Mill, Fitchburg, Mass., has resigned.

—William Johnson has resigned as superintendent of manufacturing with the Springfield Knitting Co., Springfield, Mass., and accepted a position with D. I. Devoe, of Fort Plain, N. Y.

—Edward Doheny, of Blackstone, Mass., has taken charge of the coloring department in the Putnam Woolen Mills, Putnam, Conn.

—John Bethell, for the past two years second hand of mule spinning with the Millville Mfg. Co., Millville, N. J., has resigned and accepted a similar position in the Slater Mills, Jewett City, Conn.

—Frank G. Plant, of South Coventry, Conn., has accepted a position as boss weaver with Messrs. Donahoe & Pendergrast, Baltic, Conn.

—James E. Dean, one of the proprietors of the Tremont Woolen Mills, Tremont, Ohio, died, last month at his residence in that city, aged 76.

—J. M. Williams has resigned as superintendent of the King's Mountain Cotton Mill, King's Mountain, N. C., and accepted the superintendency of the Dilling Cotton Mill, of that place.

—Thomas Holden has resigned as second hand of carding in the Beoli Mill, Fitchburg, Mass.

—Mr. Neisler, lately superintendent Dallas Cotton Mill, Dallas N. C., is the new superintendent of the King's Mountain Cotton Mill, King's Mountain, N. C.

—Charles Ashworth, a veteran cotton spinner of Willimantic, has retired from active service, and bought a home in Braintree, Mass.

—Charles H. Edmund has resigned as foreman of the Willimantic Linen Co.'s roller covering shop, to take charge of the roller covering in the Shetucket Mill, Greenville, Ct.

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Excelsior NEEDLES
The Best Hosiery Needle in the market.
Manufactured by
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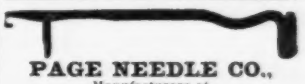
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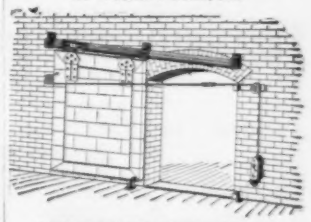
AT WORLD'S FAIR, 1893.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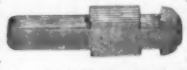
LOOM  **PICKERS**

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The attention of Woolen Manufacturers is invited to these Machines as convenient labor-saving appliances. The machine can be adjusted to make any size balls to suit lots, and the creel is constructed to carry twice the number of spools used by the old system. Send for circular.

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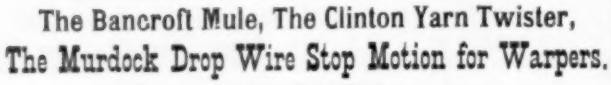

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DESIGNS. Expert Service.

I am prepared to furnish to manufacturers, advice, opinions, or suggestions as to styles and patterns of goods. If desired I will furnish details of weave construction, stock to be used, and finish required, of any pattern or sample submitted to me. I am in constant touch with the New York market, and have the necessary technical knowledge. I am not simply a picker-out of patterns, but will do that work if desired. My terms are not unreasonable. All communications confidential. Address **DESIGNER**, P. O. Box, 222, Brooklyn, N. Y.

WOOLEN DEPT.

Loom Fixing.

SHUTTLES COST MONEY.

Shuttles for looms are expensive. A good pair of hard wood shuttles for broad woolen looms cost about $2.00. Yet how careless fixers often are with shuttles. Sometimes a fixer will get mad at the loom and will throw a shuttle to the floor with such force that the shuttle will be cracked and rendered worthless for future use. Shuttles are usually furnished by the wholesale. A fixer will have four or five pair for each loom. There will be a dozen pairs on the bench. As many more will be scattered about the room. There will appear to be so many shuttles at hand, that the fixer does not realize their value. Hence he regards them as cheap and treats them as such. This is the case with fifty per cent. of our fixers. The other fifty per cent. know too well the real cost of shuttles and they are careful with them. Such men are usually first class, and they are worth higher wages than the other kind.

Looms are peculiar pieces of mechanisms to handle. Even after a man has become expert in fixing them he is often deceived. A loom will trouble him for days, and he will try all sorts of things in order to overcome the difficulty, but is unsuccessful. Then he turns to the pickers, the sticks and the shuttles. After tinkering with the loom till he gets tired he begins putting on new pickers, sticks and shuttles. Once out of ten times he will hit upon the trouble in this way,

But ought a fixer to put the owner of the mill to an expense of several dollars in order that a loom be made to run, when proper adjustment with the old materials will do?

If a loom is running with one color and one box on either side, the change from old to new shuttles is small, as but one pair is needed, but when a loom is weaving intricate patterns a full set of perhaps four pairs will be needed, and the cost to the manufacturer will be

ABOUT EIGHT DOLLARS,

or about what the fixer's pay is for four days.

Why not make the old shuttles run for another year?

When I fixed looms I had a dread of putting in a new set of shuttles, because it is only after a shuttle has run six months that it gets broke in. New shuttles are large and heavy. It is harder to get them to go into the boxes without striking the tops or bottoms. New shuttles are more likely to splinter and for several weeks must be sandpapered a good deal to keep off splinters which would tear the warp threads. Then when new shuttles are put in, it becomes necessary, often, to put on new pickers, as the points of the new shuttles will seldom fit the holes in the old pickers. Then, too, a well worn picker stick will not be stiff enough to throw a new shuttle and so new sticks must go on. New sticks usually call for new sweep straps, new picker straps, etc. Thus, there are a dozen things which must be attended to when new shuttles are introduced. Shuttles which have been run for a year are in better condition (if used right) to do good work than new ones. They are worn down smoother and smaller and so can get through the shed of the warp without striking the threads so much. Then, being worn smaller, they enter the boxes more easily. These statements are facts, as all experienced fixers know, and are made in hopes that fixers will be

LESS HASTY IN PUTTING ON NEW SHUTTLES.

But let us have a few practical talks on this matter as regards shuttles. New ones have got to be put on sometime, and so we will see about this.

When a new shuttle is put into a loom, the loom started, the weaver at once notices a click, click, each time the new shuttle enters the box. She did not hear this with the old ones. This is because the new shuttle has a larger shoulder, and being larger, it follows that the hole in the plug of the picker is too far inward to fit the point of the shuttle. As the hole in the plug is too far inward, the rear of the shuttle will be held in as it leaves the shuttle box, and the tendency will be for it to contact quite hard with the edges of the opposite box at each trip across the raceway. This can be overcome only by gouging out the picker or by putting on a new one. But shuttles, whether they be old or new, are more or less subjected to certain applications of splintering as indicated in the cut.

A SPLINTERED SHUTTLE END.

In this illustration *A* designates the shuttle, *B* the eye, *C* the thread and *D* the steel point. That part of the shuttle which is cause of considerable trouble is marked *E*. This is the upper part of the shoulder. There are several reasons why this part is forever rough or splintered. A little roughness is represented in the view.

Now every time the shuttle travels the raceway in this condition, a number of threads of the warp are worn off, and sometimes broken. This causes work for the weaver. A green weaver will work away tying up warp ends for days, losing time and money, before the trouble is detected. An experienced weaver will at once see the trouble and have it fixed. Often she will delay the fixing, and in the meantime will, with a piece of glass and sandpaper, smooth down the shuttles several times a day. But soon she gets tired of that, and calls upon the fixer. If he is green he will tinker at the harnesses, the boxes, the shuttles, and various other parts, and fool away an hour or two before he strikes upon the trouble. Sometimes he will not strike upon it at all, but will make matters worse. The experienced man will fix the trouble in ten minutes. How will he do it?

Satinet Printing and Dyeing.

EDWARD TURNBULL.

NO. III.

Having tried in previous articles to detail the routine of satinet printing, from the entry of the goods into the mill to the process of steaming, I will give the prevailing method in use in all satinet mills and compare it with the means used to accomplish the same purpose on other fabrics.

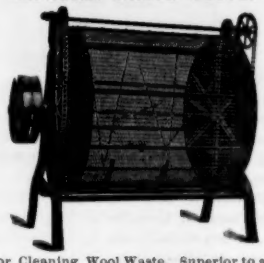
The steaming chest used is the common cylindrical-shaped one, differing only in size from the chest that most all of our readers must be acquainted with if they have had any connection with any works where goods, either cotton or woolen are steamed. Those in general use in this business, are generally larger, having a length of 18 feet, and width of 7 feet. This enables a large quantity of goods to be steamed at one time, and as the cloth seldom exceeds 30 inches in width, it will readily be seen that two widths of goods can be steamed at once.

I mentioned in previous article, that the cloth, after receiving the final portion of the design, passed over drying cylinders, and was plaited down on trucks in folds of uniform length, and as straight as possible. On each truck, about from twelve to fifteen hundred yards, are plaited; two trucks are filled with as nearly as possible the same number of yards on each truck; these are placed side by side underneath

THE CARRIAGE,

as it is called. This carriage is a framework so constructed that the goods can be suspended on iron rollers of about 1 1-2 inches diameter, covered with cord or some other non-heat-conducting material. This covering of the rollers serves different purposes, not the least of which is the prevention of the condensation of steam, which would be inevitable when the steam is first admitted into the steam chest; it also prevents the goods from slipping, while in the steam chest, as these rollers are so manipulated by automatic machinery that an oscillating motion is given to the rollers which carries the cloth with it, thus preventing the goods from imperfect steaming by remaining too long in contact with the roller at one time.

IMPROVED WASTE DUSTER



For Cleaning Wool Waste. Superior to any now in use. Manufactured by the Stillman-Rich Machine Co., Westerly, R. I. Send for circular.

This carriage rests on wheels, and is supported from the ceiling so that the rollers on which the goods are suspended, are about six feet from the floor. The principal support for the carriage is a long rod of strong iron, so constructed, that it serves also as a track, by which the carriage, when filled with goods, can run into the steam chest; the inside of the steam chest is so constructed, with a frame-work, and a track similar to the one on the outside, that when the door of the steam chest is open, a movable track can be connected from the frame-work outside to the frame-work inside, and the carriage, with goods, can be easily run on this track, the movable portion of the track removed, the door closed and bolted,

THE STEAM TURNED ON,

the exhaust valve first opened to allow for the complete repulsion of air, then partially closed, and with a pressure of from five to nine pounds, continued as long as experience has found to be necessary for the different grade of goods or colors employed, the time varying from thirty to sixty minutes.

For one steam chest it is preferable, and far more profitable to have two of these carriages, so that while one batch of goods is steaming another is made ready, and when the first batch comes out, the outside frame-work is so constructed, that it can be side-tracked and a fresh batch run in, thus obtaining a very big output from one steam chest, as it prevents the chest from becoming cold, and obviating to some extent what is called wetting the goods.

I have mentioned

AN OSCILLATING MOTION

which is given to the goods while in the process of steaming; this is important enough to be decribed more fully. The end of each roller by which the goods are suspended, is made square; this end fits into a socket; this socket forms part of an attachment whereby each roller is set in motion through a shaft running along the side of the frame, and a worm motion is in contact with every roller. The shaft to turn this worm motion passes through the end of the steam chest, and is so geared that it turns very slowly, and the goods move about from four to six inches in one direction. The automatic reversable motion than causes it to move back exactly the same distance in the opposite direction, preventing to a great extent what is known as

STICK MARKING.

This was caused by the goods resting too long in one place. Various methods have been adopted to get over this stick marking, such as hooking the goods on a frame inside the steam chest. But a much better system is employed, that of reeling the goods, that is, hanging them on the rollers above described, taking off the reversible motion in the steam chest, and allowing the goods to slowly revolve in one direction all through the time of steaming.

The old method of steaming by reeling on hollow, perforated cylinders, placing over a steam cock in a perpendicular position, is too obsolete to deserve much describing, though it has served its purpose in days gone by.

The principal method of steaming, is of course the continuous one, adopted by most all printworks, and aniline black dyers (for the latter it is indispensible). This is too well known for me to describe, and will, I believe, event-

nally be the one to take the place of other systems now in use.

I have so far written only of the mechanical part of steaming. Very able writers on this subject have claimed that the action of steam on woolen or cotton fabrics, was altogether mechanical, others have written that the effect of steam was due to its chemical action. Others again say it is

BOTH MECHANICAL AND CHEMICAL.

I am inclined to agree with the latter. Take for instance the case of aniline black; the goods are saturated with a salt of aniline, with other substance added (different dyers having their own special formulas, each one better than their neighbors), dried and steamed. In this instance I maintain it is acting both mechanically and chemically. The mechanical part consists of expanding the cells through the high temperature, opening them sufficient to allow the still soluble aniline salt to enter into the cells. It also acts chemically by oxidation of the aniline salts, of course through the means of the decomposition of the oxodizing substances employed.

This is shown very conclusively by the fact that from the steaming part of the process, large volumes of poisonous cyanogen compounds are liberated. making it unhealthy for workmen to be around it.

Again, in the case of coloring matters, such as pigments printed on the fabric, which depends for their permanency on such a medium as albumen, for instance, the action in the steaming chest in this case is, I believe, mechanical, for the heat in the steaming first causes the cells to expand and receive the color, and on cooling, these cells again close, holding as it were, in a firmer grip. While this has been taking place, the high temperature has coagulated the albumen, thus rendering it insoluble. The pigment color remains the same; it is held by the albumen by mechanical means. The albumen is held moderately fast by virtue of its adhesive power, and not from any chemical affinity.

I believe the process of steaming will be applied to purposes now unthought of, as it improves the feel of the goods, makes them finish better, in nearly all instances makes colors more permanent. I mean on either printed or dyed goods, and whenever steaming can be applied (there are instances where it cannot) it will be found that the goods have a richer appearance, and take a more permanent finish.

Books in the Finishing Room.

Editor Textile Mfg. World:

In your February issue you asked for methods and suggestions in the keeping and arrangement of the books and accounts of the various departments in mill work. As this is a matter of very considerable interest, and as the scheme ought to lead to very good results, we are led to submit what in our own experience is one of the most satisfactory plans we ever made use of.

The finishing room accounts of course are not as complicated as those of some of the other departments of the mill, but in one particular, that is the fulling room, if they are properly and systematically kept, it is surprising how the output of the mill shows the change.

Every finisher knows that one of the most troublesome things that he has to contend with, is his fulling accounts. The goods come into his hands from the weave room in all sorts of shapes and weights, and at the fulling mill he is expected to so even everything up, that no matter what previous variations may have existed, once the goods have gone through the mills, all must be uniform and

UP TO STANDARD REQUIREMENTS.

In the careless mixed up way in which many rooms are managed, this is almost an impossibility, and if it does happen that cloth is turned out uniform and even, it is generally due to sheer hard work and planning on the part of the finisher. To a very great extent this is all unnecessary.

One great part which we have learned in our own experience, is that if work is done systematically and according to definite method, one-half the battle is won. Let us explain.

In the average finishing room, the goods come from the looms and are put at once in the hands of the burlers and menders. Then they are left in a heap to await the pleasure of the fulling mills. When a couple of pieces happen to come to the fuller which require about the same sort of shrinkage, he puts them in the mills and runs them off. Then these are finished up with no reference whatever to the rest of the lot to which they belong and of which they are a part, they are sent to the ware-room to wait may be weeks or even months until the others like them come along, and then the whole lot is collected and sent to the buyer as he ordered them. If they compare one with another, it is a mere chance, and just as likely as not it will be necessary for the order, 10 or 20 pieces or more as the case may be, to be

SENT BACK TO THE FINISHER

for re-treatment in order to make them all uniform in finish and appearance.

Now this could all be avoided if only ordinary care were exercised. When an order comes to the mill, the first thing is to sort out the wool of which it is to be made. The ticket which is put on the lots should bear the order number. Then that order number should accompany the lot all the way through the whole mill until it reaches the finishing department. In this way the stock which goes into the one order is sure to get similar treatment at every step. But when the cloth comes to the finisher from the weaver, instead of being given to the burlers just as it happens to come, the pieces are kept at one side until an order is complete. Suppose 10 pieces of a certain style are included in one order; not one of these pieces is touched in the finishing room until they are all in hand ready to go ahead together. Then when the piece number, range and pattern are sewed on the head end of the goods, the *order* number is put there too, and thus wherever any of those pieces may turn up, the finisher can know exactly whose they are and what ones must finish together and alike.

The 10 pieces are thus burled together and mended; then when they are all ready the fuller takes them and, selecting those which full most nearly alike, sorts them out for the fulling mills and runs them all through at the one time so that he may be able to treat them as uniformly as it is possible to do.

But just here is where one book-keeping or account for the fuller comes in; and this is

THE PLAN.

Every piece ticket as the goods come from the weave room, contains the greasy length and weight per yard, and these figures are all to be used in the fuller's calculations. Now the book is ruled for each range, and the data are entered up as the pieces come to the finishing room.

RANGE 278.

Order Number.	15	15	15	15	15
Piece Number.	2685	2671	2698	2706	2695
Pattern Number.	1	2	1	2	2
Greasy length.	46	61¼	48	61¾	48
Greasy weight per yd.	11.6	11.6	11.8	11.5	11.6
Greasy gross weight.	532.2	87.2	45.1	31.	
Finished length	424				
Finished wght. per yd.	9.26				
Calculated length.	424	484	464	494	404
Flocks.					
Remarks.					

This is the way the book will appear and when the calculation has been made for the first piece or two, and they have been fulled and seen to be all right, a look at the book will show at a glance, just how to treat the remaining pieces in the order, not only so as to give them the necessary required finished weight, but to insure a uniform and regular kind of fulling throughout the whole order according to the variations in the greasy weight. When piece number 2695 is fulled, and seems to be about right, then the same basis of calculation can be safely used on all the rest of the order with

UNIFORM RESULTS;

45 yards at 11.6, finished all right with 2 3-4 yards shrinkage; 51 1-4 yards at 4.6 will require 3 yards shrinkage; 48 yards at 11.8 will take a least 2 3-4 yards, and 43 1-4 at 11.5 will take 3 yards, and so on the calculation would run through the whole order.

The exact uniformity in the treatment and results, and the ease with which the calculations can be made, all combine to make the scheme one of value and usefulness.

The necessity for figuring in percentage or proportion on each separate piece is done away with entirely, and an approximate figure within a quarter of a yard is found without any figuring at all. This is the great thing in its favor.

In making the calculations when the data are systematically tabulated as in such a book as above described,

ONE OR TWO SIMPLE RULES

are all that have to be remembered.

For example, if 45 yds. at 11.6 shrank 2 3-4, 51 yds. at the same weight must go up just a little more to make up for the difference in the length of the two pieces; and vice versa, a piece say 40 yds. in length, would only have to go about 2 1-2 yds. Then a second rule is, that a lighter piece must go up a little more than a heavier one. A piece at 11.7 and one of the same length at 11.5 would differ about from quarter to half a yard; the lighter piece receiving the most shrinkage.

It does not require much experience to be able to make these approximate calculations with almost unfailing accuracy. And when a few pieces of the range have gone through the subsequent processes and the finished weight and length have been ascertained, these finished pieces can be used to verify and correct whatever slight mistakes may have been made in the earlier calculations.

The finished length and weight per yard are entered up in their respective columns as the goods come along, and thus we have all the data required to make the most positive calculations upon whatever goods of that range may be ordered later on.

The need for a percentage of shrinkage, which is always a crucial thing in most fulling account schemes, is largely

DONE AWAY WITH

here. If these accounts are kept, we may use one range as a basis of calculation even for other ranges as well as for the actual one in question. Goods of similar stock colors, construction and weight, even though of a different range, can be calculated on the basis of a range that has already been finished, which it resembles. Thus, the necessity for determining the percentage is not a matter of much importance.

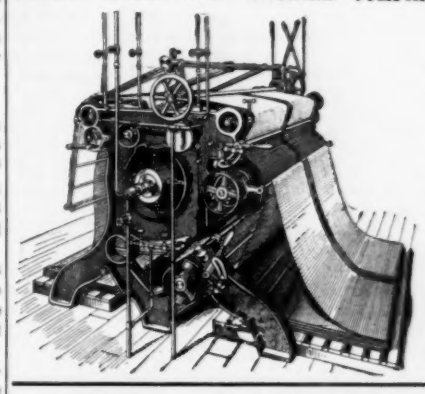
If the pieces of range 278 are fairly similar to those of range 28 or range 532, or any other ranges, their data as we have them in the fuller's books may be used as the foundation for calculations in these other ranges, and thus the amount of actual calculating or figuring is reduced almost to nothing.

Such a book with such an account systematically and carefully kept, is of immense usefulness to the finisher. It enables him to keep an eye on the condition in which his goods are coming to him from the weave room, and shows him the kind of treatment he has got to adopt in the case of the ranges that may be running unevenly in weights and lengths. But for fulling purposes, and for the ensuring of even and uniform work in all the processes in the department, its value can only be appreciated by those who give it a trial. We purposed giving a few hints with regard to other finishing room accounts, but too much space has already been taken. However, we trust our suggestion meets with approval and followers.

SPECTATOR.

—The M. A. Furbush & Son Machine Co., of Philadelphia, are building some new machinery for the Old Kentucky Woolen Mills Co., Louisville, Ky.

MILLER PRESS AND MACHINE COMPANY, WOONSOCKET, R. I.



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Adjustable in all its parts to the minutest accuracy. Fully covered by United States Patent, dated February 16th 1892. We take no back seat with our competitors in exhibiting this machine and stand ready to place it against

Any Other Rotary Press in the World

subject to the most severe tests imaginable. Full particulars and circulars will be cheerfully sent upon application. Inquires promptly answered by mail, wire, or in person.

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Information Wanted, not Big Stories.

Editor Textile Mfg. World:

Every little while I read in some of the papers articles on carding, wherein the writer inquires what is the matter with his brother carders, and asks if they are all asleep, and then goes on to tell how much work *he* is getting off from so many sets each day, and inquires if that is a fair average.

Now, if he is taking off the amount that he says he is, regardless of different kinds of stock, on old machinery, and not have half his work come back in the form of waste, he ought to be giving satisfaction. It looks to me that the carder who tells how much he is doing, and only tells you that he is running his doffer 32 or 33 turns a minute, is not telling much, and is not showing wherein he knows any more about carding than lots of other carders. There is much more to carding than speeding up.

There ought not to be so much trouble in card rooms. A mill's production is cloth, not roping. If the carder is talking "for the interests of his brother carders" as he calls them, and then fails to show them *how* it can be done, but only what *he* is doing, he had better stop talking, for he will perhaps unconsciously be the cause of better men than he is, losing their jobs. E. A. M.

—The J. J. Ryder Co., 210 Westminster St., Providence, R. I., having made a specialty of wood cuts and electrotypes for the past ten years, also manufacturers' printing, is fully prepared to meet the spring demand for this kind of work, and those favoring them with orders will get good work at low prices.

Cloth Strength Tester.

SCALES, REELS, YARN BEAMS ... AND ...

Testing Devices for Yarns and Fabrics.

FRED B. HOW, 216 Purchase St. Boston, Mass.

—Messrs. L. J. Wing & Co., manufacturers of Wing's disc fan and other specialties, will remove from 126 to 109 Liberty St., New York City.

Mill System and Management.

Prepared for the Textile Mfg. World by a Mill Manager and Designer.

1.

KEEPING TRACK OF THE WORK.

There is always a beginning and an end to every thing, and to make the writer's ideas clear to the reader in "keeping track of the work" stock must first be started, in order that we may have our lots, yarn, cloth, etc., to account for.

The usual proceedure in woolen mills, is first to start the small sample lots for making up the blanket patterns.

We have previous to starting them, decided upon the stock to be used, i.e. the mixtures or component parts of various kinds of stock to make the yarn to answer the purpose where required.

Say we are to make

A NALL-WOOL LIGHT-WEIGHT CASSIMERE.

We have decided to put in 2880 ends warp, 3 1-2 runs, 50 picks, 4 1-2 runs filling, making goods to weigh 15 1-2 ounces.

Now we select the wool in quality and staple, being careful to use the long strong staple wool for warp, and the fine shorter staple wool for filling.

As we have decided upon the stock, and, if a mixture, the percentage, we order as many pounds colored of each shade of stock to be used as we think necessary to make up the line of sample blankets required.

WHEN OUR COLORS ARE READY,

we make out tickets for the sample lots, numbering them in order from No. 1 upward, having the odd number for warp and the even number for filling. A good system is to have tickets printed using white card board for warp and red board for filling. (See 3a and 3b.)

FILLING.

Lot..... Runs..... Sample lot.....

Style..... Card.....

Goods .....

Color..... Lbs.....

Companion Lots .....

.....

.....

.....

This ticket should be printed on red board.

No. 3 A.

Our lots that we intend to use and get a variety of effects are as follows:

LOT NO.	LOT NO.
1 Warp Blk.	2 Filling Blk.
3 " Blue	4 " Blue
5 " Brown	6 " Brown
7 " Olive	8 " Olive
9 " Drab	10 " Drab
11 Lt. Brown	12 Lt. Brown
13 Lt. Olive	14 Lt. Olive
15 Lt. Drab	16 Lt. Drab
17 Pearl 70, Blk. 30	18 Pearl 70, Blk. 30
19 Pearl 35, Blk. 65	20 Pearl 35, Blk. 65
21 Blue Slate	22 Blue Slate
23 Medium Blue	24 Medium Blue

Great care should be used in keeping a correct account of the lots as originally weighed up in a "Lot Book," also the size, twist, etc., in fact, a memorandum of just how the lot should be. If made many times over during a seasons work, to guard against mistakes of the dyer in getting his colors numbered wrong, a duplicate sample of the stock is tied up and numbered, which is kept in the superintendent's office and is a help in tracing yarns that do not shade.

WARP.

Lot.....Runs Blanket.....

Style..... Card.....

Goods .....

Color..... Lbs.....

Companion Lots .....

.....

.....

.....

No. 3 B.

The lots having been picked, some of the stock from each lot (say from the second breaker drawing) is scoured and felted by hand. The stock thus treated is ticketed and

SENT TO THE SUPERINTENDENT'S OFFICE

for reference and comparison, and if lots sent through as duplicates do not match, it is a very easy matter to stop the lot on the card, and save trouble and expense of making up goods which do not shade with samples sold the trade.

Our lots having been carded and spun, they are ready to be used in the designing room.

A word regarding

THE BLANK BOOKS

used in the pattern room; some designers enter into a blank book the way each section is dressed, and after the blanket cut has been woven, enter the fillings etc. It is a good way, but a sheet of design paper cut in two parts and used, is more accurate and less labor than a book, if used as directed.

To make the matter clear we have laid out a nine section blanket warp, or what some people call "window panes," to finish 27 inches, dressing the warp four yards long. We decide to make a pattern, the dressing of which will be three light, three medium, and two dark, and to draw it in, so we can weave it eight right and eight left, or plain cassimere twill.

We now mark off the design paper and fill in the sections as in the diagram of the blanket warp, A, also carry out the drawing in draft, and the way it is reeded, chain drafs, etc.

The reverse side of the paper we leave for the weaver, who enters each crossing filling used in the order woven (see diagram B).

The blanket cut is finished, sent to the commission house and returned to the mill, with the selections marked from which we are to make selling ends.

Selling agents as a rule select a "Book" of say six styles, and from this warp we will suppose the agent has selected six styles for pantaloons and six styles for suitings. We now proceed to number the selections, using numbers in their order, first for the pantaloon or plain styles, and then for the suiting.

To make our meaning clear we call the first pattern wanted 50-1, the next 50-2, etc., and when we mark another blanket from which the selling agent has made selections, we mark it 51-1,

Diagram B.

REVERSE SIDE OF BLANKET WARP SHEET (FOR WEAVER).

Order of Weaving for 1st dressing.

Woven with Chain No. 1.

1	1st	Plain Black, lot	2.
2	"	Brown, "	6.
3	"	Olive, "	8.
4	"	Drab, "	10.
5	"	Pearl 70 & Black 30 lot	18.
6	"	Light Drab, "	16.
7	"	" Olive, "	14.
8	"	" Brown, "	12.

Chain No. 2.

9	Woven same colors and order as dressed, commencing with	1st section.
10		2 "
11		3 "
12		4 "
13		5 "
14		6 "
15		7 "
16		8 "
17		9 "

Order of Weaving for 2d dressing.

Chain No. 1.

18	Plain	Black, lot	2.
19	"	Brown, "	6.
20	"	Olive, "	3.
21	"	Drab, "	10.
22	"	Pearl 70 & Black 30, lot	18.
23	"	L'ght Drab, "	16.
24	"	" Olive, "	14.
25	"	" Brown, "	12.

Chain No. 1.

26	Woven same colors and order as dressed, commencing with	1st section.
27		2 "
28		3 "
29		4 "
30		5 "
31		6 "
32		7 "
33		8 "
34		9 "

Draw 1 2 3 4 3 2 1 5 6 7 8 7 6 5 8

Reed $4 \times 11 = 32\frac{1}{2}$"
Picks 50.
Chains No. 1 and No. 2.

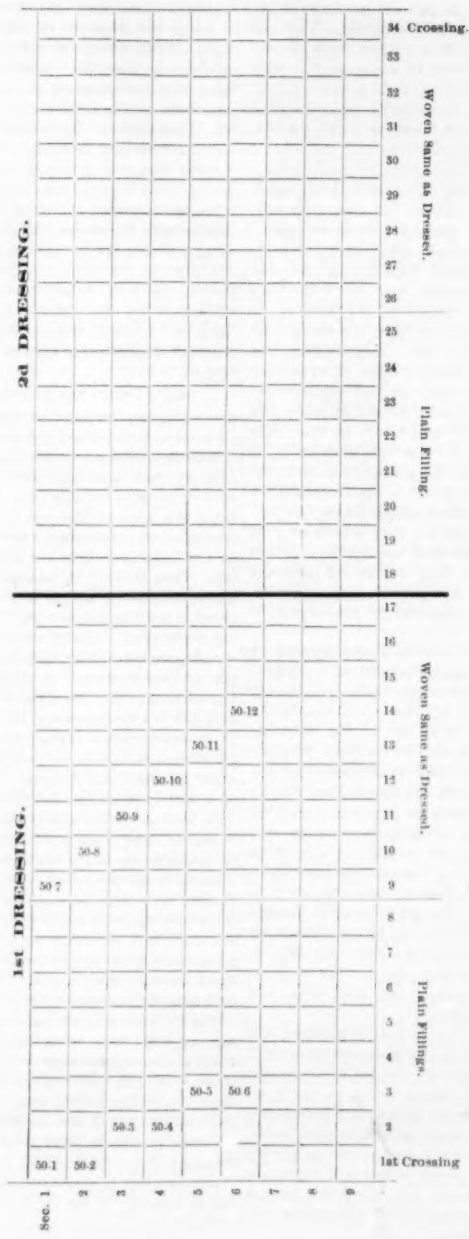
Front — Chain No. 1. Chain No. 2.

etc. The blanket pin-ticketed and numbered will look something like Diagram C.

We now enter in the design book the way each pattern should be made and proceed to make up selling ends.

(To be continued.)

DIAGRAM C.



Mill Management.

THE ADVANTAGE OF PIECE WORK.

Editor of Textile World:

As I was a mill proprietor up to a short time ago, perhaps my experience as such may interest many of your readers, more especially while the present letters under various headings on mill management are appearing in the TEXTILE WORLD.

My mill was entirely devoted to the finishing of woolen goods, flannels, serges, cassimeres, shirtings, dress goods, etc., employing about 50 men, paid on day, or more properly speaking, weekly wages, and although paying above the local average, yet for some reason or other the work turned out was neither satisfactory in quantity or quality.

After deep and serious thought and consultation with my managers I determined to put the hands on piece work, *paying so much per piece, per process;* scouring, teazling, milling, chemicing, extracting, drying, neutralizing, pressing and finishing. The result was as startling it as was satisfactory, for I was able to turn out more work with twenty-five per cent. less help, with less book keeping and at the same time tell to a fraction, the net cost of each piece, adding of course the cost of materials, coal and rent. I will not attempt to give a detailed account of the whole system, but any mill owner trying it will be surprised at its simplicity, and also from a pecuniary point of view, for it means the saving of many thousands of dollars in a moderate sized mill every year.

I am well aware that many mill owners would hesitate about putting their finishing staff on piece work, through the fear of spoilt work. I had the same fear, but experience shows one that that bugbear exists in mind only and has no foundation, from the fact that the employee having to do the work a second time for nothing militates against it, and he consequently takes more interest in and does his work better.

I should be glad to give further and fuller information to any mill owner interested, and can be reached by addressing me through the courtesy of the editor of the TEXTILE WORLD.

Chicago. B. G. S.

A 13 oz. Flannel.

Correspondent asks, would you kindly give me through your valuable paper, particulars to make a flannel which will weigh 13 ounces; also if there is any device so that blankets can be measured on the loom?

13 oz flannel: 3348 ends, 3¼ run wool.
11 reed, 4 ends in a dent.
76 inches wide in loom.
Finished width 62 inches.
Filling 54 picks, 5¼ run wool.

To be run up in mill 8 per cent. in length should be drawn on 4 or 6 harness.

Full particulars for a device to measure and indicate the yards as they are woven, can be obtained of N. W. Stearns 113 Devonshire St., Boston.

—Pettee Machine Works, Newton Upper Falls, Mass., have recently received a large order for their revolving flat cards and drawing frames from the Fall River Mfg. Co., Fall River, Mass.

BLANKET WARP A.

	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Sec. 7.	Sec. 8.	Sec. 9.
1st Dressing.	3 Light Drab, lot 15.	Blue Slate, lot 21.	Light Brown, lot 11.	Pearl 70 and Black 30, mix lot 17	Light Olive, lot 13.	Light Drab, lot 15.	Light Brown, lot 11.	Pearl 70 and Black 30, lot 17.	Light Olive, lot 13.
	3 Drab, lot 9.	Blue, lot 3.	Dark Brown, lot 5.	Pearl 35 and Black, lot 19.	Dark Olive, lot 7.	Medium Blue, lot 23.	Dark Olive, lot 7.	Drab, lot 9.	Dark Brown, lot 5.
	2 Black, lot 1.	Black, lot 1.	Black, lot 1.	Black, lot 1.	Black, lot 1.	Black, lot 1.	Black, lot 1.	Black, lot 1.	Black, lot 1.
	8 x 20 Patt. = 160 x 9 Sec. = 1140 Ends 3/4, or 2880 Ends 6/4.								
2d Dressing.	3 Light Drab, lot 15.	do.	do.	do.	do.	do.	do.	do.	do.
	3 Drab, lot 9.								
	2 Black, lot 1.								
	3 Light Drab, lot 15.								
	3 Drab, lot 9.								
	1 Black, lot 1.								
	1 Red Silk and Black D & T.	Gold Silk and Black D & T.	Blue Silk and Black D & T.	Orange Silk and Black D & T.	White Silk and Black D & T.	Orange Silk and Black D & T.	Blue Silk and Black D & T.	Red Silk and Black D & T.	Gold Silk and Black D & T.
	16 x 10 = 160 x 9 = 1440.								

ANYTHING
Entire Outfits for New Mills, or small and odd items that you don't know just where to obtain, can be found at the
AMERICAN SUPPLY CO.
PROVIDENCE, R. I.
in Mill Supplies.

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Hopedale, Mass. { Established 30 Years. }
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—MANUFACTURERS OF—
Fluted Rolls, Pressers for Flyers and General Machinery.
Specialties made of Reflecking, Refluting, Filing and Honing all kinds of Rolls.
Flyer Repaired and Fitted with any desired style of Pressers, Spindles Straightened, Restepped and Retopped.
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Sole Manufacturer in United States of
BRASS AND STEEL MAILS
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Roving Cans.
made of the best IXXX Tinned sheets. Years of experience and improved methods of manufacture have enabled us to produce a Can unexcelled for strength, finish, and durability.
Hill's Patent Roving Can.
Jas. Hill Mfg. Co., Providence, Rhode Island.

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MANUFACTURERS OF
Mill Bandings OF ALL DESCRIPTIONS,
AND DEALERS IN ALL KINDS OF Mill Supplies.
COOK'S LOOM FORKS.
71 and 73 Pleasant Street, - Fall River.

COTTON DEPT.

The Manufacture of Ginghams.

For the Textile Mfg. World.

Continued from February.

Upon some makes of beamers, on the Lancashire pattern more especially, where the beam is driven by the frictional contact of the yarn on the barrel of the beam with a leather cover driving roller, it is possible to make a beam wind so firmly that it is almost as hard as wood.

For some classes of coarse strong work, a beam of this kind is all right, but on the finer, and consequently weaker yarns, the yarn should be wound on the beam more loosely, so that it may form a cushion, as it were, and give a little when any extra strain is thrown upon the yarn; by doing this, it saves a good deal of breakage in the yarn and means an increased product of the loom.

The habit of making

EXTRA HARD BEAMS

is an attractive one to the superintendent and overseers who are after product with a very sharp stick. A few more cuts on a beam than is the usual custom, is generally looked upon as a gain; it certainly means cheaper beaming, drawing in, and less time lost in the weave room, through getting warps. But if these gains are to be made at the expense of the weaving qualities of the yarn, the real gain is very doubtful, and in some cases there is a decided loss.

After leaving the beamer, the yarn goes to the drawer in, who draws the ends in their proper order through the eyes of the harness and the splits of the reed. For the present we will not say anything further on this operation, except to remark that a short time ago it was reported that a machine had been invented that successfully performed the work of the drawing in girls, but so far the machine has not been placed upon the market, as far as I knew, so that the public could have a chance of judging of its merits.

Let us go back to the yarn as it is wound on the section beams ready to be sized. We must remember that upon this

OPERATION OF SIZING

depends in a large degree, the manner in which the warp will handle the amount of the production both in beaming and weaving, and the quality and character of the goods when woven. It is very difficult to get an all-round equally good size. Some colors do not take the size as readily as others.

A cutch brown is sometimes rather troublesome. I know of one case where nothing the mill could do seemed to help their cutch brown work. They vainly tried different ingredients in their size; tried potato starch and corn starch, both separately and blended, but all with the same result; the size seemed to take all dust off the browns when being woven. Finally they came to the conclusion that the yarn was practically

COATED WITH THE CUTCH

so that the size was prevented from striking into the yarn at all: it was merely coated on the outside, and of course could not be expected to adhere to the yarn when subjected to the operation of weaving; a change on the method of dyeing cured the trouble.

THE STARCHES

which form the body of the sizing compound or mixture, require the addition of certain substances, in order that the size may be so applied that its full benefits be realized. A softener is needed to take off some of the harsh and rough feel so injurious to the character of the woven goods and so destructive to the harness; a substance is needed that will cause the size to penetrate into the yarn, for a size entirely upon the outside of the yarn isn't going to give the best possible results; and in addition an antiseptic is needed for the prevention of mildew.

THE MILDEW FUNGI

form on certain portions of the starchy matters, and as dampness is very favorable to, and conductive of, their growth, it is highly necessary to all cloths, unless very lightly sized, to take steps to prevent the mildew from forming. Chloride of zinc is the material used for this purpose and besides this quality, it also improves the feel of the cloth, because being a delequiscent salt, it attracts moisture and tends to give the cloth a leathery feel, instead of a board like hardness.

There are several antiseptic mixtures sold, but chloride of zinc is the foundation of them all, and while it may perhaps be more convenient in some cases to buy the ready made mixture, yet for many reasons the pure article itself is better to use, as the amount used can be so regulated that the desired effect will be procured.

MITCHELL

Economic Manufacturing.

Editor of the Textile World:

Manufacturing plants should be organized on a plan that not only anticipates competition, but is able to successfully meet it, be it of domestic or foreign origin. Whenever a cotton mill makes more cloth than can be consumed in the country where it is operated, it comes directly in competition with the world in the sale of its surplus output. That cotton manufacturers may meet the competition that is "bobbing up serenely" in the four quarters of the globe without imp irment of net income or reduction in the wages of labor, new fields of operation must be sought.

For reasons that will appear as we proceed, New England is not the best place in the United States for turning cotton into yarn and cloth, neither will the cotton producing zone be found the most profitable place for carrying on that work.

The successful cotton mill of the future will be the one that receives its cotton in the seed directly from the planter, ginning it only as required for use in the mill.

Cotton received by the mill in the seed and ginned by the best methods will, if spun beside the plantation ginned article (both samples to be of same goods and spun under the same conditions) make 1400 more yards of yarn to the pound than the sample ginned on plantation. (Our correspondent omits to state what kinds of yarn he has in mind.)

If to the increase in the output of yarn, is added the saving in cost of bagging, ties, baling, freight, insurance, drayage, extra cost of handling, brokerage, picking and loss from dirt, we have an array of items that if placed to the credit of income instead of outgo, would turn the barren and unprofitable mountains of opposition that now confront the American spinner, into beautiful dividend paying valleys of peace to self, and contentment and happiness to employees.

Then why not be guided by wisdom, why not listen to the voice of sound judgement and locate the cotton mills of the future in places where they will be least affected by competition? Then, the manufacturer will no longer be obliged to rack his brain over the problem of "Protection or Free Trade." Come from whence it may, competition will never force him to reduce the wages of employees or pass a dividend.

C. H. MERRY.

Calico Printing Machinery.

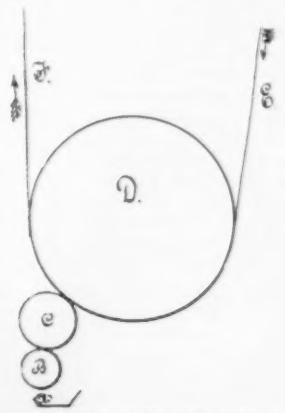
With the exception of one or two styles, the whole of the calico that is printed is done on the cylinder printing machine.

This is a Scotch invention, brought out about the year 1770-1780, and about 1830 was practically as we find it at the present day.

The principle on which the machine works we will now explain by the help of the diagram. The cloth to be printed, *E*, passes around the bowl of the machine in the direction of the arrows. The bowl, *D*, is lapped with several thicknesses of blanket, in order to provide an elastic but firm bed for the cloth, and one which will press the cloth well into the engraving.

THE PRINTING COLOR

is contained in the color box *A*, which may be constructed of wood or copper, and the color is supplied to the engraved printing roller *C*, by means of the furnisher *B*, which is a wooden roller covered with cloth. The furnisher presses the color into the engraving, as well as smears the surface; the surface color is then removed with a copper plated steel blade, known as the "color doctor."



The copper printing roller, charged with color, then comes in contact with the piece to be printed: the latter soaks up part of it and the remainder is transfered on account of the pressure on to the face of the cloth. The cloth then passes on to the next roller, or if it is only a single color pattern, to the drying chests. The lapping used on the bowl of the machine has a linen warp and woolen filling, ten thicknesses being generally employed.

THE THICKNESS OF THE DOCTOR

to be used depends upon the character of the engraving on the roller, a thick doctor being used for heavy engraving, such as blotch work, and a rather thinner one for fine engraving, as small sprig or flower patterns. The average thickness of the doctors employed is about 23 on the standard wire gauge. The furnishers can be driven in the same direction or the reverse direction to that in which the engraved printing roller is travelling. For the most of the colors, the furnisher is worked in the same direction as the printing roller is going, and generally in such cases a lapped furnisher is placed in the color box; but when pigments or any color liable to stick in the engraving is being printed a brush furnisher is preferable, and if should be driven the opposite way to that in which the copper roller is revolving. For fine patterns a very soft furnisher should always be used.

In addition to the color doctor, there is another doctor at the other side of the printing roller, the object of which is to remove any lint or "fluff" that may have come off the face of the piece, and thus prevent it being carried into the color box. Lint soon finds its way to the color doctor and lifts it, with the result that the piece is streaked until the lint is removed. Many colors are liable to

FROTH IN THE BOX

and this is particularly liable to occur if the machine is run too quickly. If the machine is run at too great a speed, the cloth has not time to take the color from out the engraving, and is, consequently badly printed.

A to-and-fro motion is always given to the doctors by various mechanical devices, such as, by level wheels and cranks, and eccentrics, or by cam and lever, the object being to cause the doctor to wear evenly. The doctor, if freed in its position relative to the engraved roller, would be worn only by those parts of the roller in contact with it, viz., the plain parts and the edges of the engraved parts, hence the edge would soon become uneven. By giving a to-and-fro motion to the doctor, this is, to a considerable extent, avoided.

Formerly printing machines were driven by underground shafting, provided with clutches for various speeds, a choice of three being general. How each machine is driven independently by means of a separate engine, and this is found more convenient and economical on account of the irregular service required of the motive power.—[Scientific American.

The Cost of Spinning Filling on Rings vs. Mules.

At the present time this is a topic which is attracting more attention in Fall River and elsewhere than any other in the entire system of cotton fabrication, and having reliable information that from two hundred thousand to a quarter of a million mule spindles were being weighed in the balances, as to whether they are to be displaced by frames for filling, we here reproduce from our issue of March, 1893, the best article we have ever seen on this subject.

To show that this is not an uncommon or doctored report, where unfair conditions prevailed, we will say that in order not to call attention to the special case cited, we had altered the number of spindles but kept all the percentages accurately, so as to give the exact results without practically naming the mill. By coincidence a mill, many miles distant from the one quoted, found the number of spindles, percentages, etc. so perfectly in accord with their own experience that, we are informed, they immediately concluded that their own figures were used as a basis of the article.

Such coincidence is especially pleasing, as indicating that our report was not "doctored" to suit any ones interests or theories.

* * *

Ever since the introduction of ring frame spinning, the advantages and disadvantages of that system for spinning filling yarns has been discussed by earnest advocates of both sides. Apart from the quality of the yarn produced, the question of cost has always been an interesting problem.

The experience of a large New England manufacturer who is noted for his progressive spirit and financial success, throws some interesting light on this subject, and we advise careful perusal of his letter, which we consider one of the best statements of the subject that we have ever seen:

Editors Textile Mfg. World:

At your request I take pleasure in submitting to you a statement wherein the cost of spinning ring filling vs. mule spinning is considered, taking into consideration the cost of machinery, labor, waste and power. The following figures are on a basis of 36 weft, running time of 60 hours per week, and wages as they were in 1890.

Besides the figures given above, there are some other items to be considered, among them the cost of bobbins and travellers on ring frames. These would, I believe be about set off by the extra repairs and machine work on the mules, by the cost of ropes, cop tubes, etc.

There is another point to be considered, and that is the life of the machinery. The mill from which the statement above was compiled was using the Sawyer spindle at that time, but the present form of the Rabbeth has a much longer life than the Sawyer, especially so on filling frames, where the speed is not so great as in spinning warps. Give them 15 years life, and assuming that they could be replaced at a cost of 70 cents per spindle, to be as good as new (the parts of the Rabbeth being interchangeable, so that some parts would not need to be replaced), 27,360 spindles at 70 cents=$19,152.

Now as the advantage of frames over mules as shown by the statement above is $5,807.04 per year, in 15 years this would amount to $87,215.60, which would replace the spindles and leave a margin of $68,063.60, which is almost equal to the first cost of the frames.

There is another item to be considered that every manufacturer operating mules will appreciate, and that is their independence from a very troublesome class of operatives, mule spinners, who have in the past given a good deal of trouble at times.

I hope that the above figures may throw some light on the subject to manufacturers who are interested in the subject, and should be glad to see any other statements which may agree with, or differ from, mine, that are the result of the practical experience of those who have tried both. COLUMBIA.

COMPARITIVE STATEMENT OF COST.

Product of 23,760 Ring Spindles, No. 36's,	27,086 lbs
No. of Mule Spindles required to produce 27,086 lbs. No. 36's	31,331
Cost of 23,760 Ring Spindles at $3.00	$71,280.00
" " 31,331 Mules " " 1.75	54,829.25
Floor space required for 31.331 Mule Spindles	37.312 sq. ft
" " " " 23.760 Ring "	20.362 " "
Extra floor space for mules.	16.950 " "
Cost of extra space at $1.25 per sq. ft.	$21,187.50
" " Mule Spindles,	54,829.25
Total Mules.	$76,016.75
Cost of Ring Spindles	71,280
Balance in favor of Rings	$4,736.75
Horse power for 31,331 Mule Spindles	200 H. P.
" " " 23,760 Ring " 7,600 rev. per min. is estimated at 110 spindles per H. P.	216 "
Balance in favor of Mules	16 "
Cost of extra power for Rings at $40 per H. P. per year	$640.00
Product of 23,760 Ring Spindles per year	1,408,735 lbs.
Cost per pound Mules.	1 $\frac{85}{100}$ cents
" " " Frames	1 $\frac{85}{100}$ "
Saved in labor in one year at ¼ cent per pound	$2,817.47
Cop waste made in a well managed mule mill, about	375 lbs. per wk.
On Frames	65 " " "
Difference in favor of frames	310 " " "
" " waste in one year	16,120 lbs.
Value of same at 15 cts	$2418
1 Hand less in Weave Room to distribute bobbins, at 80 cts per day, for 1 year	$240.00

RECAPITULATION. RESULT FOR ONE YEAR.

In favor of Frames.

Labor,	$2817.47
Waste,	2418.00
Interest at 7% on difference in first cost of Mules and Frames,	331.57
Distributions of Bobbins,	240.00
	$5807.04

In favor of Mules,

Difference in H. P. required	640.00
Net Result in favor of Frames	**$5167.04**

The percentage of gain on the invested capital of $71,280 (cost of frames) is 7¼ per cent.

[In connection with this subject it may be interesting to state that we know of a mill in New England where there are over 10,000 ring spindles running on numbers from 40s to 85s. The front rollers on numbers 85 are running 116 revolutions per minute, and on numbers 70, at 118 revolutions, and on number 64s, 122 revolutions per minute. The spindles are running at a speed of a little over 9000 revolutions per minute. The girls are tending between 700 and 800 spindles each, and the spinning is of very high quality. It is all carded work. The rings are 1 1-4 inches in diameter. This mill has been doing this class of work right along for the past few years.

As this is a subject of great interest to manufacturers, we hope to hear from those whose opinions either corroborate or differ from the opinions of our correspondent. ED.]

Chats on Cotton Combers.

For the Textile Mfg. World.

III.

"George, go and tell the second-hand I want to see him in the picker-room. We have got to mix and run about 1500 pounds of Sea Island cotton per week," said the overseer. After which, the overseer goes to the picker-room and superintends the "getting in" and making ready for mixing of five bales of Sea Island cotton.

Upon the arrival of the second-hand, he proceeds to instruct him as follows:

"First,—get some men, and clear a place in the corner. All ready? Well, open the five bales and station one man at each bale, and have each man take small handfulls, carry them over to the corner, and shake it well, so as to mix it thoroughly.

"While you are attending to the mixing, I will get the boss picker-tender to help me to set the feed-rollers on that finisher-picker with but one beater. I am going to set the feed-rollers back until they are about 5-8ths of an inch rom the beater.

"I think I will use this picker exclusively for running Sea Island cotton, feeding it on the apron, and running it first as a breaker-picker, and make a quantity of laps; then put the laps on the apron and run it as a finisher picker. I do not believe in working this cotton any more than I am obliged to, as the fibres are very delicate and require very

CAREFUL HANDLING."

"Now," said the overseer, turning to the boss picker-tender, "we will set those feed-rollers, after which I want you to clean those grates and cages, and the inside of the picker thoroughly."

After the overseer finishes setting the feed-rollers, he goes to the second-hand in the mixing room, and says to him, "Are those six H. & B. cards ground that I spoke to you about a week ago?"

"Yes," replied the second-hand.

"Well, I will take charge of the mixing, and you may go out in the card-room and have the lap taken out of one of those Howard & Bullough cards that you have had ground for this Sea Island cotton, and have it stripped, and got ready for setting, and I will be out there as soon as I can."

Just as they are getting through mixing, the boss picker-tender reports to the overseer that the picker is ready.

"All right," responded the overseer: "Get your picker-tender, and have him feed on to the apron lightly, and we will regulate the lap. I want it to weigh eight ounces to the yard. Make enough breaker-laps to keep the picker running as a finisher-picker for half a day, then put your breaker-laps on the apron, and

RUN IT AS A FINISHER-PICKER,

and regulate your evener to make your finisher laps weigh eight ounces to the yard also.

"I will leave you to attend to this; if you should want me, you will find me at the Howard & Bullough cards."

"Well," said the overseer, addressing the second-hand, "send the boss-grinder down here; I want to show him how to set these cards; then you may attend to your other duties."

"First take out the feed-roller, the licker-in and licker-in screen, and knives," said the overseer to the boss-grinder. Here are two gauges four feet long and about 34-1000ths of an inch thick. Put one on each side of the cylinder between the cylinder and cylinder screen, and set the screen up to that. Next set that back plate to the cylinder to your 7-1000ths gauge. That plate is to cut off the seeds and motes, and must be set as close as it can be got, so as to prevent fly or strips from gathering there.

"Now set the licker-in screen to cylinder to 7-1000ths gauge, after which put the licker-in on, and set it to cylinder to 11-1000ths gauge; turn it to make sure it does not strike the screen. Set both knives to licker-in to 11-1000ths gauge. Put them back, and put the feed-roller in and set to 19-1000ths gauge.

"Now go around to the front, take the cover off from the doffer, and set front-plate to 8-1000ths gauge. Set the doffer to 8-1000ths gauge also. Then set the comb to doffer to 11-1000ths gauge.

NEXT SET THE FLATS

to 8-1000ths gauge; then get a stripper to turn the cylinder, and listen; if you can hear anything strike, draw the part off that is striking until you cannot hear it.

"Now we will get the gears, and draught it. I think it is for the best interest of the room that every man who has charge of a section should thoroughly understand the mathematical, as well as he practical part of the machines under his care, therefore, I will proceed to instruct you

HOW TO TAKE THE DRAUGHT,

also how to find the gears that would give you any draught you might require.

"First, find the diameter of the feed-roller; then count the number of teeth in the plate-gear, then the feed change-gear on cross-shaft; after that, the gear on the end of the doffer, then the large gear on the other end of the doffer, then the gear on the end of the big calendar roll, then the gear on the other end of the calendar roll. Next, the double carrier gears to coiler, after that the gear on the upright shaft, then the gear on the top of the upright shaft, next the gear on the small calendar roller, and lastly the diameter of the small calandar roller.

"I will make a tour of the room; you probably will have them all counted by the time I return, then I will show you how to figure them out."

When the overseer returns, the boss-grinder handed him the following figures:

2¼ inches diameter of feed-roller.
120 teeth in gear on feed-roller.
12 " " change gear.
22 " " gear on cross-shaft.
22 " " " the end of doffer.
180 " " " the other end of doffer.
19 teeth in gear on the end of big calandar roll.
24 teeth in gear on the other end of big calandar roll.
16 teeth in gear on double carrier.
20 " " " " " "
20 " " " " upright shaft.
20 " " " " top of upright shaft.
20 teeth in gear end small calendar roller.
2 inches diameter of small " "

"Now," said the overseer, "begin at the feed-roller and mark them thus, alternately, "driver" and "driven." Then multiply all the drivers together, and multiply all the drivens together, and divide the product of the larger by that of the smaller, and the answer will be a constant number, which, upon dividing by the change gear, will give the draught. In placing your figures to find a constant number leave out the change gear, when multiplying, as follows:

$$\frac{2\frac{1}{4}\times22\times19\times16\times20\times20}{120\times22\times180\times24\times20\times20}=1515.79$$

constant number.

"Now as we are going to use a 12 feed change gear (that gear being the smallest we have got, and allows the licker-in to go through the cotton more thoroughly than a larger gear would), we will get the draught thus: 1515.79÷12=126 31 draught.

(To be Continued.)

Re-established on the Old Site.

It is with pleasure, that we learn that the Home Bleach & Dye Works, of Pawtucket, R. I. are again established on the site of their old works which for 14 years previous to the fire of Feb. '93 were so successfully operated.

The capacity of the new plant is more than double that of the old, the water privilege is especially fine and with all modern improvements they are well prepared to execute orders for bleaching and dyeing spool thread, tapes, braids, macrame cord, druggist's twine and cotton yarns of all descriptions for use in woven and knitted fabrics.

Tension Pulleys.

The firm of Wm. S. Spofford & Son, 234 Chestnut St., Providence, R. I., have taken the New England agency for the tension pulleys manufactured by David Lupton's Sons, Kensington, Philadelphia, and they will be in a position to fill all orders promptly, at prices to secure the trade. The Lupton pulley has achieved remarkable success, which it fully deserves, for in design and construction it takes front rank, and the claim made for it of 25 per cent. saving in power, seems to be well founded, for one pulley drives four spindles. A decided advantage in point of construction is that this pulley is made from two pieces of metal only, thus avoiding any seam on the face of the pulley, which is very apt to cut the tape. It is a pleasure to note the business connection of two such representative firms as those mentioned.

Aluminum.

There has just been patented in England, an invention, which consists in weaving or intertwining threads of aluminum, either by itself or along with the material usually employed in the manufacture of cloth of various descriptions, lace, rope, cord and the like.

—W. H. Summersby, who has been superintendent of B. B. & R. Knight's Mill at White Rock, R. I., for the past 7 years, began his duties early in April as superintendent of the Henderson Cotton Mill, Henderson, Ky. This is a mill of about 30,000 spindles running on sheetings. The Kentucky mill is certainly to be congratulated upon securing the services of Mr. Summersby who has for a few years back been recognized as one of the most able managers in the North.

—"The Pettee Machine Works, Newton Upper Falls, Mass., have just received the order for cards and drawing frames from the Newberry Cotton Mills, Newberry, S. C., for their new 15000 spindle mill. They are to have 72 of the latest improved Pettee revolving flat cards and 192 deliveries of their improved drawing."

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Size for Sizing Silk Warps

If you want a BEAUTIFUL FEEL, GOOD WEAVING, GOOD APPEARANCE to Cloth, Saving in HARNESS, WARPS STRENGTHENED, USE "SLASHENE." Many instances can be cited where from 5000 to 8000 lbs. more of Yarn have been woven with the same number of Looms since using "SLASHENE."

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Sateen Ticks.

When the name sateen tick is used, the general impression is that of a line of goods or a fabric which is some way resembles a sateen. But a sateen tick is in no way like a sateen, being used for an entirely different purpose. These goods are made of all cotton and are used for upholstery, the name sateen tick being taken from the weave which is a satin weave.

Fig. 1.

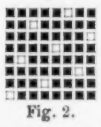


Fig. 2.

There is quite a demand for this fabric, but the manufacture of it is chiefly in the hands of a few large mills, who monopolize the industry.

The great trouble with those mills who have tried to make this fabric, has been that they have used a two ply yarn for the warp, and this has made the goods harsh in feeling and unfit for the purpose.

The only proper way to make them so as to feel soft is to

USE COMBED COTTON YARN

single, for the warp, and the same stock for the filling, only twisted harder than the warp.

The best fabrics on the market have 98 ends to the inch of single 7's, and about 52 picks of single 14's. The makes a smooth face, free from twill lines, with the points of intersection evenly distributed.

Fig. 1 shows the simplest kind of a satin weave, which is woven on five harness. These weaves are constructed by taking the number of harness to be used for the satin, and dividing it into two parts, which are neither equal, nor the one a divisor of the other, nor can be divided by a third number. Thus, if five is the number of the harness on which the satin is to be woven, divide it into two parts, which according to the rule are 2 and 3. These are neither equal, nor the one a divisor of the other.

THE STITCHING

for the weave is obtained in the following manner. The first intersection will be on warp thread No. 1, the next intersection will be either on the third or fourth warp thread according to whether the weave is counted off by two or three. If counted off by two, the intersections will be as follows, $1+2=3+2=5+2=7$ which equals $2+2=4+2=6$ which is one again and so the weave repeats.

Most all of these goods are woven on

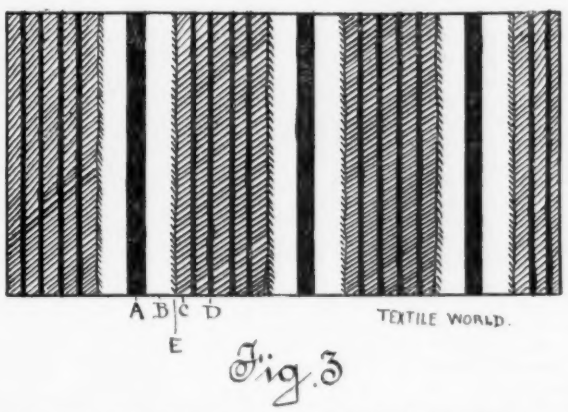


Fig. 3

this weave, but in some cases

THE EIGHT HARNESS SATIN

is used which is shown in Fig. 2. This is constructed on the same plan as the five harness one, only the intersections of the warp are less, and consequently admits of more picks and a heavier fabric.

The satins are very desirable goods to make, being capable of being woven easier and faster on account of the weave.

THE LINE OF COLORS

should be as simple as possible, because

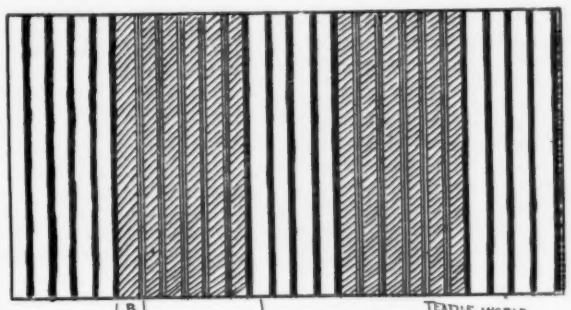


Fig. 4.

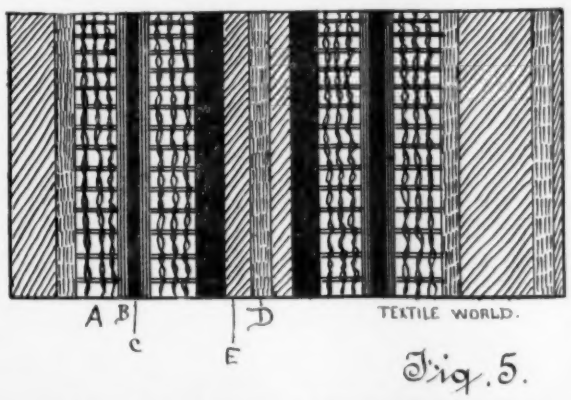


Fig. 5.

weave which is used and from which the fabric obtains its name is the satin weave, using the warp face one, which throws the warp almost entirely on the face. It

the fewer colors to be manipulated, the less the expense. Following is a line which is in use in one of the largest mills in the country.

Black
White.
Red.
Very light Tan.
Medium Tan.
Dark Blue.
Brown.
Light Brown.
Medium Blue Grey mix.
Light Blue Grey mix.
Yellow
Orange.
Light Blue.

These colors if made in good light shades, can be combined in a great variety of effects and produce innumerable patterns.

Figs. 3 and 4 show some of the combinations and also the style of the stripes. Fig. 3 is dressed.

A	10 ends	Dark Blue.
B	20 "	White.
E	2 "	Orange.
C	12 "	Light Blue Grey mix.
D 4 times	2 "	Dark Blue.
	12 "	Light Blue Grey mix.
	2 "	Orange.
	20 "	White.

using all white filling.

The dressing of Fig. 4 is

A	4 ends	Dark Blue.
B 4 times	12 "	Light Grey mix.
C 4 times	4 "	Red.
	12 "	Light Grey mix.
D 4 times	4 "	Dark Blue.
	12 "	White.

using all white filling

A very good style and one which has a very broad stripe can be produced by the following dressing.

120 ends		Red.
10 "		White.
60 "		Light Tan,
4 "		Dark Blue.
10 "		Medium Tan.
4 "		Dark Blue.
10 "		Medium Tan.
4 "		Dark Blue.
10 "		Medium Tan.
4 "		Dark Blue.
60 "		Light Tan.
10 "		White.

All white filling. This dressing can be varied by using 120 ends dark blue in place of red. The rest remaining the same.

Another very good dressing is.

1st. Dressing.		2d. Dressing.
10 ends Red		or Dark Blue.
10 " Dark Blue	"	Red.
88 " Red	"	Dark Blue.
10 " Dark Blue	"	Red.
10 " Red	"	Dark Blue.
50 " White.	"	Same.
3 times { 6 " Dark Blue	"	Orange.
{ 10 " Dark Tan	"	Dark Blue.
{ 6 " Dark Blue	"	Orange.
50 " White	"	Same.
2 " Dark Blue	"	Red.
16 " Red	"	Dark Blue.
2 " Dark Blue	"	Red.
50 " White	"	Same.

Filling all white.

In all these dressings the colors can be varied and produce a very fine line of stripes; the principal effect to be aimed at is contrast in colors, combined with harmony, and there is almost no limit in the range of designs. The stripes can be from the widest to the neatest.

Fig. 5 shows another effect in this class of goods. Here the regular satin weave is combined with a leno or gauge stripe, and in this way a very striking pattern can be made.

In beaming the warp for this effect, the ends which are on gauge should be put on a separate beam.

sible under ordinary circumstances without great care and expense. A system that would ensure regular mixing, airing and ageing, has important theoretical possibilities, and the practical results are found to be of great value.

Mr. Stephen N. Bourne of the Stark Mills, Manchester, N. H., has invented and put in application a process which is ideally perfect as regards proper handling of cotton. Besides being of importance as controlling the future processes in keeping the numbers even, it is economical, requiring less help to keep the cotton supplied to the pickers, and is thoroughly systematic.

In line with each opener picker or picker feeder, is placed a traveling platform on which the cotton is fed. As the cotton is placed on the platform at one end and taken from it at the other, it is evident that the cotton being supplied is always aged by the time it takes to travel from one end of the platform to the other. In the two processes of loading and unloading the platform, the cotton is thoroughly mixed.

The platform as shown in the descriptive cut is simple and easily constructed by an ordinary carpenter. The only casting needed is the rack, which Messrs. Geo. Draper & Sons can supply. The platform is made of separate planks which can be readily handled and moved from one end to the other. One man with a bar can move the entire load of platform and cotton. It is safe to figure about a bale to the foot when estimating the amount of cotton on a platform of the size shown. Details are governed by the space which is at hand. The height, breadth or width of the platform and sides can be varied as found necessary.

We would recommend those interested to see the process in operation at the Stark Mills.

Messrs. Geo. Draper & Sons, of Hopedale, Mass., are ready to arrange with those desiring to use this system. They do not superintend the construction, but simply grant a license to use, and invite correspondence

Strength Lost by the Twist.

According to experimental research, it appears we can only obtain about 30 per cent. of the total amount of fibres composing a thread of any given size. This verdict gives one a strong desire to refute it. When we consider the degree of perfection to which we have brought all our cotton machinery, the actual intelligence displayed by the various movements, the sensitiveness exhibited in the manipulation of the fibres, from the raw condition, through each process, converging and placing the fibres in closer contact in order to fit them to withstand the strain to which they will be subjected when they finally arrive at the point where size, cleanliness and order show they are suitable for the twist which is to bind them into one, and then to find that, with all our care and skill, as soon as the association is formed, instead of adding to the strength of the fibres, we have really taken away some 70 per cent. is to depart forever from the old saying that "Union is strength."

If we take a cross section of a thread of any counts, numbering the fibres and multiplying the weight that one of them will sustain without breaking by the total number of fibres, the aggregate strength should result; but this is only the theoretical strength, because we take it for granted that each fibre has the same amount of resistance or degree of strength. Now, this is a fallacy. Fibres are neither of the same length nor diameter, nor, in fact, of the same matured condition in growth in the same pod. This determines the tensile properties of individual fibres, but the question is why do we not get a higher percentage of strength in our yarns? Well, if we notice how fibres are combined and twisted round one another through their entire length, we are convinced that they suffer some alteration in their structure. All fibres are not completely and securely entwined throughout their entire length, and, owing to the manner of union as a thread, their tenacity cannot be as great as it would be if more intermingling could be adopted, similar to braiding them together.

The point of resistance when a strain is applied is not at the extremity of each fibre, as when tested separately, where each fibre merely sustains its own weight. In a thread some of this resisting power is spent in direct opposition to each other, thus weakening and lessening their united strength. If the fibres are straight, as they are when separate, the elasticity is complete, but in the thread this not the case, because all do not stretch alike; some become ruptured sooner than they would if the rest possessed more elasticity, that is in a cross section at that point. It may be said further that all fibres at the point of rupture do not break at once, and some not at all, but simply pull away from the rest, and here we fail to realize what would remedy this great deficiency, for if we twist them so that they shall all break at once we shall be in a worse plight than before. In any and every case excessive twist will diminish the strength of any thread however spun.

What we have said about the great disparity between the actual and theoretical strength of yarns may be of some value to students and operatives. The loss is not due to our neglect or incompetency as spinners, but to an inevitable combination of circumstances, although an increase of strength might be obtainable, but for the pernicious custom adopted of putting in too much twist. A very inferior staple is so twisted to make it adhere together, but the yarn is trashy and unfit for any fabric but the very lowest that can be woven.

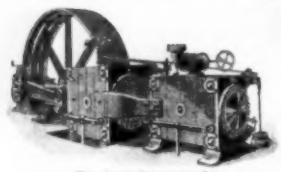
The constant twist factor, whether it be 3.25 or 4, or any other figure, is not to be depended upon; in fact, spinners of well-known ability alter according to the fiber they have to contend with—the only use of the factor is as a mere guide. Too much twist is loss to spinners, and, in a woven fabric, in place of increasing the strength of the cloth, whether used as warp or weft, its tendency is to weaken it to a great extent. The extremes are carried out both ways, and the reason for this is that there is and always has been a diversity of opinion. One advocates plenty of twist, another a medium amount, while a third declares he cannot sell any yarns except those that are soft twisted.—[Textile Industries.

—Great advance is reported in the cultivation of cotton in the Russian provinces of Central Asia. Nine years ago the yield in Turkestan was not more than ten thousand pounds. Last year the output was two million one hundred thousand pounds of cleaned cotton. The cotton districts available to Russian enterprise have an aggregate area capable of producing eight to ten million pounds annually.—[American Agriculturist.

Handling Cotton.

In the usual process of delivering cotton from the bale to the picker, system is almost absolutely lacking and results entirely problematical. While it is known to be beneficial for the later processes to have the cotton well mixed, aired and aged, it is practically impos-

FRICK COMPANY, Engineers, WAYNESBORO, PA.



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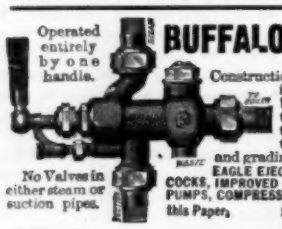

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Bringing Up a Steam Plant.

BY REX.

NO. XVIII.

ROPE TRANSMISSION.

Continued.

As stated in our last number the numerous breakages of our ropes and the time lost by our 1000 employees entailed so much work on our time clerk that it came to a question of devising some new plan or hiring an assistant for our time keeper. So an order was given that the next time a rope gave out to cut it away from the driving pulley and go ahead with the other sections. This of course threw the workmen in the stopped department out of work for the remainder of that run.

This scheme failed to work for several reasons. In the first place the men found considerable fault at loosing so much time, but this the company could have put up with if it had not been for the fact that the breaks seemed to come in the very departments where we wanted the goods the most, and a five hours delay might mean a heavy loss in the way of countermanding an order which those few hours might have completed, for a five hours wait in an afternoon often means an all night delay in shipment.

Another factor in the case was the immense cost of the ropes where they were cut away, for of course they could not be used again without several splices, and each of those besides taking time also increased the liability of breaks, for nearly every rope which broke parted just back of the splice. A faint idea of the cost of the scheme may be had from the fact that in one week we cut away one drive of 1360 feet and one of 800 feet of best quality 7-8 manilla rope.

Just here came one of the humors of business life, where one man thinks another ought to know what he personally is thinking about. The agent came in as we shut down and as he did so he saw a knife cutting its way through the eight rope drive making skipping rope of another 1360 feet.

"See here, Mr. Rex. What on earth are you cutting that rope for?"

"It's broke."

"Well, supposing it is?"

"Why, your orders were to cut the ropes away when they broke, and start up."

"I know they were, but I should think your good sense would teach you better than to waste rope like this, but don't cut any more."

"Well, what shall we do. Shut down and splice the rope?"

"No. Don't do that."

"Shall we reeve it off?"

"No. We tried that once and found it all tangled up with the others so it took longer to free it than it would to make a splice."

"Then, what shall we do?"

"I don't know. Use your own judgment, don't ask me. I'm sick."

In other words he had led us into a bad box, and then left us to find our way out.

We suggested that possibly the cutting of larger holes through the beams and partitions through which the ropes passed might help out somewhat, for in that case less weight might be used; but this wouldn't do for they did not propose to cut the building up any more. Larger ropes were mentioned but this was out of the question as the drivewheel grooves were just as large as the surface would admit of and at that were not hardly large enough.

The matter of rope size and weights for tightening was a factor which had been fearfully and wonderfully underestimated. This could be seen by watching the ropes run for a few moments. Take, for instance, what was called the eight rope drive, or in other words the drive running off of the drive wheel in eight ropes.

When the load began to be felt, you would see one rope tighten up, then another and another, giving one the idea of violin strings until it had passed the winder or tightening carriage, when the weights would drop and draw all the strands or ropes to that tension. When the load lightened the carriage and weights slackened a little, but not to their original tension and as it was thrown on again the tightening process was gone through with same as before, which made it evident to the ordinary observer that at times the whole load was practically carried on one rope instead of being divided on the eight.

This was a discovery which after being made seemed so clear that we wondered why we had not seen it before, also why those who installed the plant had not figured up the working strain with a view to having it carried all on one rope. Mr. Lampwick, the expert, was sent for who tried to convince us that this line of reasoning was all wrong, but when we stood and saw the first rope of any drive tighten before the others had felt the strain, it was evident that this strand was obliged to take the whole strain. Of course with a rope running over 3000 feet per minute the one rope was not subjected to the whole strain only momentarily, but the strain was there just the same until it could be taken up by the other ropes.

When asked by us if he thought the single rope strong enough to carry the load alone, Mr. Lampwick was obliged to say that he did not think it would for any length of time, and when his attention was called to the way the ropes tightened he admitted that to all appearance one rope actually did carry more than it was supposed to, but he added that the system must be right, just the same, for others were running it. He failed to explain, however, how a system which overloaded a rope could be right.

Realizing we had an

ELEPHANT ON OUR HANDS

a council of experts was called to try and find some way out of our troubles. The suggestions came in, in almost every way. One recommended having a man inspect the ropes and splices every morning and noon, so to be able to take out and put in a splice without loss of time. This immediately found favor and one man was detailed to do it. But it was found that if he took time to hunt up all the splices, it would be starting time before he had looked at the last one, and should that one happen to be giving away there would be no time to repair it. So an engineer was called in and the engine run for half an hour or until I could bring the various splices into the engine room for inspection, a man was also detailed to stand ready to help splice if it was found necessary. This gave three men an extra hour every day looking over the ropes, which made another black mark against their economy; in fact, the ropes now had cost in repairs more than furnishing the entire establishment with belts would, and as for the much talked of ease with which power could be transmitted at right angles, no quarter turn belt ever gave more discomfort than the ropes did, taken as a whole.

Next we found our

PULLEYS WEARING OUT.

First came a small flat place worn by a blow or two, or possibly a slip of the rope, and when once this flat place appeared a new pulley was a certainty, for in a short time the groove would be worn so there was no turning of the pulley.

Belts were now assuming an importance in the mind of the company, for power transmission, that they never had before even in their palmiest days and the shop's crew were always in doubt when the power stopped whether it was noon, night or ropes.

Many plans were discussed as to the advisability of lessening the load on the ropes by putting in another engine to drive part of the load with belts. But none of them seemed to be feasible, and the company had almost become willing to adopt the suggestion of the shop wit, who remarked that "The load could not be driven with ropes with dressing, and it certainly could not with ropes without dressing, and there seemed to be nothing left to do but try to drive it with *dressing without the ropes.*"

We were living in constant fear that the ropes would cause some heavy accident, and as a safeguard a telltale was constructed of tumblers weights and a lever connected to a whistle attached to the main steam pipes, so that when a rope commenced to give away it would strike one of the tumblers, drop a weight and blow a whistle, thus enabling us to shut down before any great damage could be done.

As is often the case we had accustomed ourselves to depend upon this safeguard for a warning, and dared to venture a little further from the engine than before it was put on. This proved to be just the opportunity needed for the ropes to put in a final stroke, and one day while figuring out a job of piping with our man in that department the warning signal sounded and in less than ten seconds the engine room was

FULL OF FLYING IRON,

oil and rope, while the shrieking of the whistle and the steam escaping added to the affair all the element of a first class wreck. An investigation showed that one of the rope drives had parted and winding in between the main journal and the eccentric had broken the eccentric strap and twisted the rod until it might have been taken for any letter in the alphabet.

This was the "last straw," or last rope for the company immediately set about making arrangements to replace all the rope drives with belts. After this had been accomplished we found several surprises, one of which was that our coal consumption decreased noticeably instead of increasing as had been prophesied by the rope people, who claimed that the substituting of iron pulleys for the light wooden ones would necessitate heavier shafting and increase the friction load on the engine. In other words we found that even the claim that we should make a saving on coal consumption by adopting ropes on account of lessening the friction load was as far out of line as the other economical(?) features of the system.

Rope Transmission may be, and probably is, an excellent thing, as it is used

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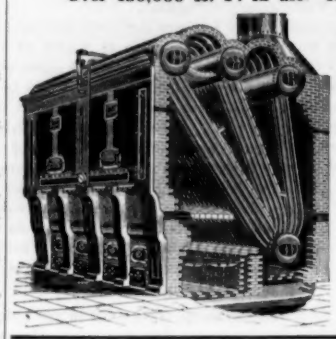

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almost universally in Europe, but it must be properly installed and it is decidedly unwise to expect one system will work in this country because a totally different one does in England, or at least one which has only one similar feature, that of the rope itself.

To drive machinery by rope several things are absolutely essential. The rope must be large enough to stand the maximum strain or work. It must be given room enough to run so that excessive tension will not be required to keep it from striking anywhere, for one blow on a rope running over 3000 feet per minute is more than apt to break a strand, and after the process of weakening has once commenced it increases very rapidly until the whole rope gives away. It must be taken care of and kept properly dressed so that the fibres may be held closely together and not left open to absorb anything that may come in contact with it. All bearing surfaces must be ample and smooth so as not to cut the fibres, and the neglect of any of these precautions will almost certainly lead to their being considered, what we found them, a failure.

Wants More Information about Removing Scale.

Editor of Power Department:

Dear Sir: Being an old and experienced engineer I have heard a great deal about the use of kerosene oil for the removal or prevention of scale formation in boilers. I read with much interest the two articles you published some months ago signed "Fen" and was disappointed to find they were not continued, as I think they showed an intimate knowledge of steam boilers on the part of the writer, also of the great trouble engineers experience in keeping their boilers free from scale and thereby obtain the full benefit of fuel consumed.

At that time "Fen" had found two different plants where engineers were using kerosene oil, and as he seemed a thoroughly impartial critic I would regard it as a favor if you would publish this letter in hopes he will take the subject up again and give us engineers the benefit of his ideas or what he has learned in this connection since.

Yours very truly
WM. GARDNER.

Complicated Machinery.

One great difficulty with many of our so called coal saving, yes, and for that matter, labor saving devices is that they are not infrequently so complicated and require so much time and attention to keep them in repair, that they often prove a source of expense instead of economy.

There is much truth in the remark of the lady who when asked what was the cause of her only too apparent weariness said "that she had been trying all day to make a labor saving machine work."

It is very often the case where some company places upon the market a simple, practical, mechanical appliance which is really a labor and money saver that some other firm realizing it is a money making invention, will put into the field something similar, but in their endeavors to get around the former patent, will complicate their machine to such an extent, that in practical use it gives just the opposite effect from that of the earlier device, or in other words, it proves a money and labor master instead of a saver, and yet so long as it bears a resemblance to what has been known as a good thing, people will be found who will purchase it for various reasons, the principal one generally being that it is cheap(?). Of course it does not necessarily follow that the later machine is worthless, but every purchaser should in a measure post himself with the workings of the same, and simplicity in construction should always command a premium, especially, where results are equal.

When one stops to think they will readily see the wisdom of this, for a complication of parts means extra wear, additional cost for repairs, and extra time for making the same, to say nothing of the trouble which any repairs always necessitate. While we would not say that the following would have any practical bearing upon the above, we illustrate two well known valves to show how that a certain result is obtained by two totally different methods.

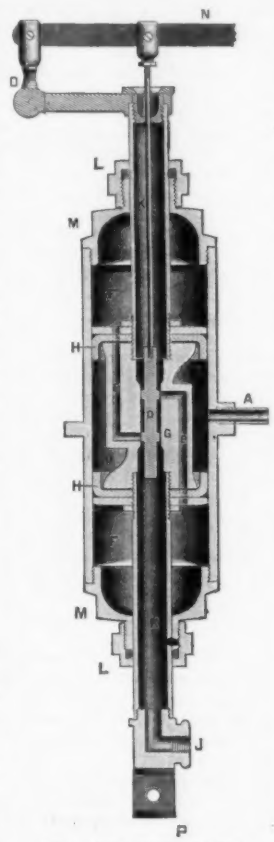

FIG. 1. About one-fourth size.

These valves are used upon two devices called Damper Regulators. It is well known that a damper regulator is a machine constructed to weigh the steam pressure in one or more boilers, and as it increases or decreases will open or close the dampers, so to maintain an even pressure all the time. In this it will be seen that accuracy is very essential and the machine which moves the damper upon the smallest variation of steam pressure is, of course, the greatest coal saver and should command a premium. This of course is wholly governed by the valve which operates the motor which moves the damper, consequently that comes in for the greatest wear, and all wear must, of course, affect its accuracy, as this kind

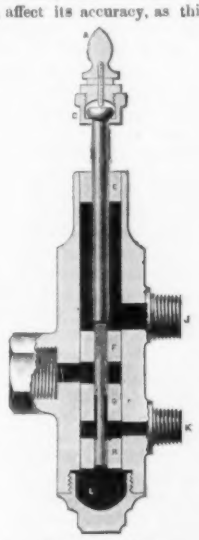

FIG. 2. Half Size.

of a valve must be positively water tight in order to admit or shut off the water supply to the motor.

One style of valve that is now in use may be seen by referring to Fig. 1, in which is shown the motor and the valve. The latter marked *A*, in the interior of the motor performing at the same time the office of a valve and of a central portion connecting two large pistons *H. H.*, containing a reservoir for high pressure water, which is admitted at *A*, also the conduit pipes or passages *E. E.*, and a carrier for the two large pipes *K. K.*, which act as piston rods, one for operating the damper lever *P.* and carrying up and down the escape pipe *J.*, the other for carrying the lever *N.*, and fulcrum *O.* This contrivance is placed in the interior of the large cylinder of the damper motor, having cylinder heads *M. M.*, with two large stuffing boxes around the pipes *K. K.*

In marked contrast with this mechanism is the valve Fig. 2, which is the prime feature of the Locke Damper Regulator and which controls the whole action of this machine. Water enters the valve at *K*, and passes up through ring *G*, passes along pipe 1 to the water motor of the regulator partially closing the damper. When the steam falls the spindle *D* is moved down, opening a passage in seat ring *F*, at the same time closing part *G*, this allows the water to escape by the way of pipe *J*, and allowing the piston in the water motor to fall in the water motor opens the damper. This valve was constructed with a special view to meeting the hard wear that a governing valve must be subjected to, and has separate or seat rings *E, F, G, H,* (made of extremely hard metal) driven into the interior of the valve, and whenever it becomes necessary, may be forced out and new ones inserted, which with the removal of spindle *D* constitutes practically a new valve. The simplicity of this valve is evident to anyone and with efficiency guaranteed should certainly command a premium.

Silk Machinery Wipers.

We have in our editorial columns from time to time drawn attention to silk machinery wipers manufactured by the American Silk Mfg. Co., 311 Walnut St., Philadelphia, Penn., and again take pleasure in doing so, knowing the silk machinery wipers will be of great advantage to every mill, not alone on account of economy, but also for the safety against fire. Cotton waste, which is now used in a number of mills, has probably caused more fire losses than any other one thing, whereas there is no danger by the use of the raw waste silk machinery wipers.

The board of Fire Underwriters in Pennsylvania have indorsed the wipers, and some of the insurance companies make it a stipulated term in their policies that these raw silk wipers must be used in the mills they insure. The American Silk Mfg. Co. have very largely increased their trade of late, and some departments of the U. S. Government are their customers now. The above firm gives free of charge to every customer who buys their wipers a washing compound which cleans the latter without trouble and very quickly.

For further information address the above firm.

Why Use Oil?

WHEN YOUR LOOSE PULLEYS CAN BE FITTED UP TO RUN PERFECTLY DRY?

L. Kick, Esq., supt. Botany Worsted Mills, Passaic, N. J., writes, "As the result of our experience with your Metalined Bushed Pulleys, it gives us pleasure to testify to our complete satisfaction with same. We have had these pulleys in operation in our mills for the past three years, using same for heavy work run by double belt, and have entire confidence in all that is claimed for them."

Mr. James Wright, the machinist of Reid & Barry Co., Passaic N. J., states, "I have about two dozen Loose Pulley Bushes with Metalined Bushes, some of which have been in constant use for the past four years, and as yet show no signs of wear, and have never had any trouble with them running 240 rev. per minute with six belts, without using oil."

Geo. W. Weeks, Esq., agent of the Lancaster Mills, Clinton, Mass., (who have been using Metalined Loose Pulley Bushes since April, 1885) says, "You are at liberty to quote us as saying that so far the Metalined Bushes supplied by you and used by us in our spinning frame pulleys, have worked to our entire satisfaction." North American Metaline Co., sole manufacturers, Cor. 3rd and West Sts., Long Island City, N. Y.

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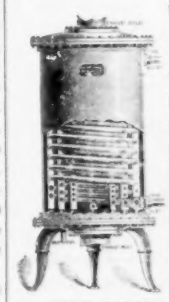
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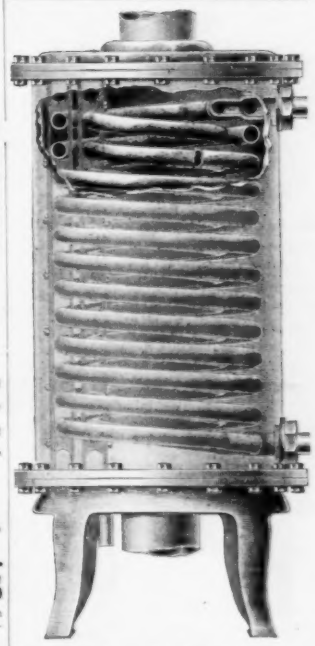
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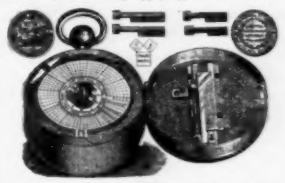
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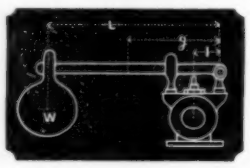
Mention this paper.

Calculations for Safety Valve Weights.

For making the necessary calculations about

SAFETY-VALVE WEIGHTS,

etc., the following will suffice to cover the most important points. Referring to cuts:



W denotes the weight at end of lever in pounds.

L denotes the distance between centre of weight and fulcrum in inches.

w denotes the weight of the lever itself in pounds.

g denotes the distance between center of gravity of lever and fulcrum in inches.

l denotes the distance between centre of valve and fulcrum in inches.

V denotes the weight of the valve and its spindle in pounds.

A denotes the area of valve in square inches.

P denotes the pressure in pounds per square inch at which the valve commences to blow.

To find the weight required to load the valve for any given pressure, *L*, *l*, *g*, *A*, *V*, and *w*, must be known. Then

$$W = \left\{ (P \times A) - \left(V + \frac{[w \times g]}{l} \right) \right\} \times \frac{l}{L}$$

Or, multiply *P* by *A* and call the quotient *a*; then multiply *w* by *g* and divide the product by *l* and add *V* to the quotient; call the sum *b*.

Divide *l* by *L* and call the quotient *c*.

Subtract *b* from *a* and multiply the difference by *c*. The product will be the required weight in pounds.

Or, multiply blowing pressure by area of valve in square inches; from this subtract weight of valve and spindle plus the weight of lever multiplied by distance from centre of lever to fulcrum, divided by distance from centre of valve to fulcrum; this remainder, multiplied by distance from valve to centre of fulcrum divided by distance from weight of fulcrum, will give the number of pounds required for the weight.

Example. Diameter of valve=4 in. Distance from fulcrum to center of weight=36 in. Distance from fulcrum to centre of valve=4 in. Weight of lever=7 pounds. Distance from fulcrum to centre of gravity of lever=15 1-2 in. Weight of valve=3 pounds.

What must be the weight at the end of the lever to make the blowing off pressure 80 pounds?

Area 4 in. valve=12.566 square inches.

$$a = 80 \times 12.566 = 1005.28$$

$$b = \frac{7 \times 15.5}{4} + 3 = 30.125$$

$$c = 4 \div 36 = .111$$

Then (1005.28—30.125) ×.111=108.3 pounds.

To find the length of lever, or *distance from fulcrum* at which the weight must be placed for any required blowing off pressure, *W*, *w*, *g*, *l*, *V*, and *A* must be known. Then

$$L = \left\{ (P \times A) - \left(V + \frac{w \times g}{l} \right) \right\} \times \frac{l}{W}$$

Or, proceed as in the first case for the quantities *a* and *b*. For the third quantity, *c*, divide the distance from fulcrum to centre of valve by the weight. Subtract *b* from *a* as in the first case and multiply the difference by *c*. The product will be the required length.

Example. Take the same data as given in the above case. How far must the weight be placed from the fulcrum to make the blowing off pressure 75 pounds?

Area 4 in., valve=12.566 square inches.

$$a = 75 \times 12.566 = 942.45$$

$$b = \frac{7 \times 15.5}{4} + 3 = 30.125$$

$$c = 4 \div 108.03 = .037$$

Then (942.45—30.125)×.037=33.7 in.

To find at what pressure the valve commences to blow when the weight and its position on the lever are known.

$$P = \left\{ \frac{(w \times g) + (L \times W)}{l} + V \right\} \div A$$

Example. Take the data in the first of the above cases, where *w*=7, *g*=15 1-2, *L*=36, *W*=108, *v*=3, *l*=4, and *A*=12.566.

Then we have

$$\left\{ \frac{(7 \times 15.5) + (36 \times 108.3)}{4} + 3 \right\} \div 12.566 = 80 \text{ pounds.}$$

And in the second case, where the weight is 33.7 inches from the fulcrum, we have

$$\left\{ \frac{(7 \times 15.5) + (33.7 \times 108.3)}{4} + 3 \right\} \div 12.566 = 75 \text{ pounds.}$$

Points for the Manufacturer.

Every manufacturing establishment is more or less dependent on steam for motive power, with very few exceptions. Those having control of large water-powers are to some extent independent, but most of the larger establishments are obliged to have auxiliary steam power, having found by experience that at certain seasons of the year, the water power is not to be relied upon, especially since the large increase in production of late years.

It is only a question of time when the power for a city will be electricity, generated at central stations, distributing the power as it may be required, which will do away with numberless small plants. Some practical method of heating the buildings by means of the same power will probably be developed in time, so that heat, light and power will be furnished to manufacturing establishments from central stations.

The one positive, absolute expense of running a manufacturing establishment is

THE FUEL BILL.

Taking the smaller factories as an illustration, the owners will, as a general rule, put in a modern engine, well made and economical in steam, but they will very often put in the cheapest boiler that can be purchased. There are probably fifty horizontal tubular and two-flue boilers sold, to one of the water tube variety.

One would think that a manufacturer desiring to compete with others, would naturally look closely at the bills he has to pay, and see where any economy can be practised, but, as is often the case, the reduction comes first from the wages of the employees, and it is very seldom that he looks into the matter far enough to see if any economy can result by making improvements in the steam plant.

THE COST

as regards running an engine is not much more for one of 1000 h. p. than for one of 100 h. p. as regards labor, but it takes ten times the cost in coal to run one that it does to run the other.

Taking a plant requiring the development of say 1000 h. p., calling a h. p. the evaporation of 30 lbs. water for h. p. per hour from 212° F., feed-water running 24 hours per day; the two-flue boilers will require about 60 tons of coal at $2.00 per ton, which would be $120 per day or $36,000 per year.

The horizontal tubular would require about 50 tons or $30,000 per year.

The water tube would require about 40 tons or $24,000 per year.

This shows a difference in cost of fuel between the water tube boilers and the two-flue boilers, of $12,000 a year in favor of the water tube, and between the water tube and the horizontal tubular, of $6,000 a year. The difference in the cost between a battery of horizontal tubular and a battery of water tube boilers of 1000 h. p. is in the neighborhood of $5,000. It would seem as if a manufacturer would hesitate to pay out the extra sum of $6,000 in cold, hard earned cash for coal, if he was satisfied, that by the extra expenditure of $5,000 in case he was putting in a new plant, he could save that item of $6,000 each year, which in itself is

A VERY LARGE DIVIDEND

on the original cost of the change.

Or even if he has the boilers in operation, and by tests on them shows he is using that amount of coal, it would be the best investment he could make, and throw away his old boilers and put in water tube boilers.

Horizontal tubular boilers are very difficult to keep clean from scale, as it is practically impossible to get at the spaces among the tubes where the scale collects. A water tube boiler, every square inch of which is accessible to eye and scraper, is required to be kept clean.

There are exceptions to every rule, and there are many plants of tubular boilers, running with great economy, but taking the average, the results will be about as stated.

Every manufacturer should

MAKE A TEST

of his boiler plant. It is not necessary to employ an expert, but every one should know just how many pounds of coal they are using each day, and how much water they are evaporating into steam for each pound of coal. A great many boiler tests show excellent results as regards evaporation, until the quality of the steam is tested, which generally shows up with a large percentage of moisture.

A boiler should not show at the outside over 1 1-2 per cent. of moisture in the steam, and with water tube boilers it should not at any time be over 1 per cent. and ought to be about 1-2 of 1 per cent.

By making all these tests, which can be done in one day, each manufacturer would then know what his boilers were doing, and could then make up his mind whether any saving could be made by changing to the water tube variety.

ONE OTHER SUGGESTION

I would make in regard to the economy of the boiler room. I do not believe there is one manufacturer in one hundred who knows the saving to the coal pile there is in having the feed water heated by the exhaust steam.

The difference, practically, between feeding water into the boilers at 100° and 200° is about 10 per cent., that is, from the increased temperature of the feed water up to 200° there is a 10 per cent. increase in the amount of steam furnished from the same amount of coal used, or there is a saving of 10 per cent. in the coal used, giving the same amount of steam. No manufacturer should allow feed water to be put in his boilers at a temperature less than 200°, and the nearer it gets to 212° the better. There are plenty of feed water heaters made that will give a temperature of about 210° to the feed water, with no back pressure on the engine.

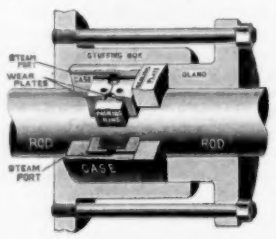
Just one word of advice to manufacturers—you pay the bills—see for yourself just what your steam plant is doing. If your boilers are not evaporating about 9 lb. water to one pound of coal, a change should be made, and if the feed water is not entering the boiler at over 200° F., a change should be made there also. Only see to it yourself, for the money to pay the loss comes out of your own pocket. C. P. A.

Piston Rod Packing.

The wear and tear on piston rods can not be understood by the inexperienced and scarcely appreciated by the experienced. In the old days when hemp or fibrous matter were the only materials used for packing the stuffing boxes, the rods were more quickly injured, than since the advent of metallic packing for the same use. Then the bill of expense for truing up old rods or replacing by new was enormous. This expense is still great, but small by comparison. That the rods should be free as possible, from friction is a thoroughly conceded fact.

The tightening of the gland, where soft material is used, or the band or spiral springs employed in metallic packing, to keep the material down snugly to the rod, must create a friction and wear the rod.

The accompanying cut shows a metallic packing that beyond point of cut off, relieves the rod *entirely* of friction.



Steam does the work that springs or the tightening of gland is required to do in all other packing. A simple case is made to fit into the stuffing box. This case has ports open for the admission of steam. The packing is done by a split joint metal ring, made of material impervious to the destructive effect of steam, yet soft and pliable. Two brass wear plates are placed over this ring as a protection. There is always ample play allowed between the outside diameter of these plates and inside diameter of case to form a steam chamber and allow of vertical motion in the event that the rod is not in line. The sealing plate placed in front of the case holds the steam within the chamber, and the gland screwed up against this sealing plate forces the case to the bottom of the box where it makes a steam tight joint. No new contrivances are required and the old gland can be used.

This packing can be constructed so as to go outside the box, as readily as inside with equally good results. It is a universal packing, working well on stationary, marine and locomotive engines. It will work under pneumatic pressure perfectly. It is so simple in construction that a child can adjust it, it requires no care beyond an occasional dash of oil, and will run on an engine for many years, and never injure the rod. It can be placed on small rods as well as large.

For rotary valve stems it is excellent and will last the life of the stem, besides being remarkably cheap, and for this and its many other good qualities has rapidly risen to a high place in mechanical field of invention.

The Columbian metallic rod packing was placed on the market after several years of severe, but successful, tests. In less than three years some 3000 have been placed on stationary and marine engines. Twenty-two railroads in the U. S. are using it. It is under test on Canadian and European railroads.

Don't Neglect the Repair Shop.

Enough attention is seldom given to the choice of tools in the machine and repair shop, while the greatest care is always given to the selection of a single machine intended for the production of goods, whether in picker room or the finishing department. Indeed in the mill proper, the nice qualities and the economic features of every thing, from a hand card to a pick glass, are thoroughly understood.

A system, to be a system, must be complete throughout. It must begin at the very gate of the mill and be observable in the outside arrangements; so with the system of becoming familiar with merits of different machinery.

There is a real economy in fitting up the repair shop of a mill, which should not stop with the mere purchase of the machinists' tools, but should continue to show itself every day the machine shop is working. In the repair shop of a cotton or woolen, or, in fact, any kind of textile mill, the drills, lathes and planers should be selected carefully with a view to their adaptability for the work generally required in this class of establishment.

This work of selection has been simplified by Messrs. P. Blaisdell & Co., of Worcester, Mass., who for a number of years past have given the construction of machinists' tools, for the class of work required in the textile mills, special attention. They manufacture Blaisdell's patent upright drill, with quick return motion, engine lathes, planers, boring mills, gear cutters and hand lathes, and have just issued their catalogue of these specialties for 1894.

The catalogue, which is complete in its descriptions, contains twenty-five wood cuts, of the firm's leading lines of machinery and it would seem advisable that any shop using lathes and drills should send for one.

The machinery represented by the cuts are built from new and improved patterns.

The lathes have wide cone sections for belt, and steel spindles with large and long bearings with either cast iron or gem metal boxes. The lathes can be furnished with screw cutting and back gears, if desired. The spindle boxes and slides to the carriage are self oiling.

The upright drills are covered with several patents invented by Mr. Blaisdell, all of which are of especial merit.

The drills are very simple in their construction, the cones are large, wide belts, heavy gears, cast steel spindles, with patent worm feed; also a patented device for disconnecting the worm from the worm gear, allowing the drill to be returned very rapidly, thus saving a great amount of time in its operation, and so simple that an inexperienced workman can operate it in an instant's time, without liability of getting out of repair; they are fitted with adjustable and revolving tables. On the larger sizes back gears and self-feeds are put on if desired.

With each machine, without extra cost, the company furnish countershaft pulleys and hangers.

We would advise writing the Messrs. P. Blaisdell & Co., for any information on their class of specialties.

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C. F. TAYLOR, Manager.

Indicator Practice.

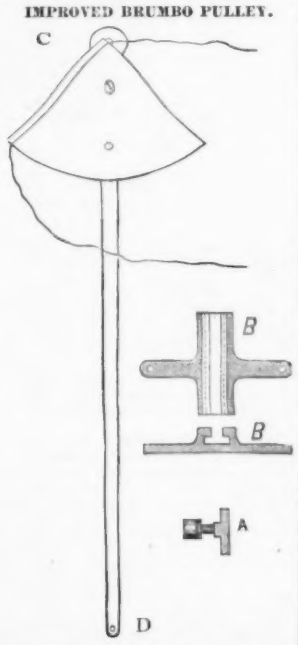
BY W. A. MORRISON, M. E.

VIII.

REDUCING MOTIONS.

Probably the simplest for general use is the Improved Brumbo Pulleys, as shown in the following cut. It is simply a narrow bar of wood at least one and one half times the length of the stroke of the engine. The cord runs over an arc, the centre of which is the pin upon which the bar swings. The radius of the arc from the swinging point to give the desired length of the diagram required can be readily found, by dividing the bar

IMPROVED BRUMBO PULLEY.

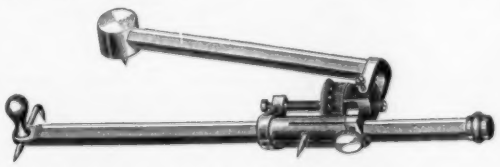


by the stroke and multiplying the quotient by the length of the diagram desired, the product will be the required radius.

For example, if the bar is 30 inches long, and the stroke 20 inches, and we wish to obtain a three inch diagram, we have 30 inches divided by 20 inches, equals 1 1-2 inches, which multiplied by 3 inches equals 4 1-2 inches, the radius required to give a diagram 3 inches in length. When the cross-head is in the middle of the stroke, the swinging bar must be in the middle of its path; this apparatus has but few points and is quite simple.

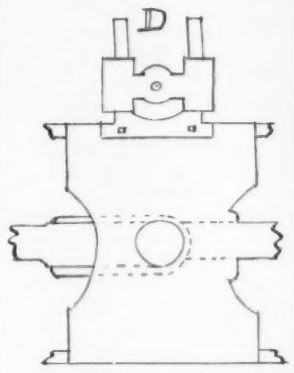
The writer has made an improvement in this device as shown in the cut. Instead of a link to connect bar with cross-head as heretofore used, the lower end of bar is pivoted to a T headed bolt *A*, (or any other convenient device) which slides in a grooved plate *B*.

This plate or device must be attached to the cross-head in such a manner, and the swinging point of the bar should be in such a position, that the bar will stand vertical when the piston is at half stroke. The bar should also be so located that when at half stroke, the lower centre will be as much below the line of motion



as when at the ends of the stroke it is above. It is not essential that the grooved plate should be at the centre of cross-head pin, it may be placed above or below, as is most convenient. By this arrangement the motion of the cord is parallel with the piston and is coincident with it (it can generally be arranged without the use of carrying pulleys which should always be avoided if possible), and it also gives a correct line upon the card which is not the case with the old plan.

The writer has made another device which he used on other engines with good success, involving the same principle. Instead of the grooved plate and T headed bolt, a small pair of guides were attached vertically to the cross-head with a cross-head working in it having gibs to take up the wear, to the centre pin the swinging bar was attached as shown in the cut D. It has given good satisfaction, having been used several years; it makes a very smooth line upon the card, and the motion is positively coincident with that of the piston.



The old Pantagraph motion makes a correct line when in good order and is quite easy to attach, but having a good many points it is apt to wear, and become shaky in a short time.

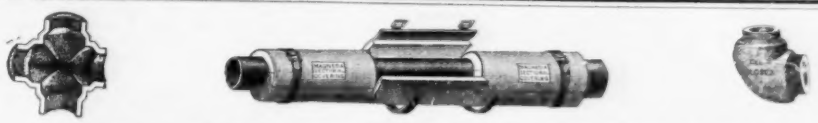
The reducing wheel is a good device and is fast coming into general use. There are several styles made, most of them attached to the bottom of the indicator. In many respects this may be a convenience but it would seem to be far better to the successful working of the

indicator to have it free from an additional weight and jar, incident to a connection with anything more than is actually necessary to do its own work, namely: record the result of the working of the engine; the prices of various styles of these wheels vary from 20 to 40 dollars.

There is another style made with an aluminum wheel, having six speeds on a cone pulley, thus obviating the necessity of changing bushes, as in the previously mentioned wheels, to suit different lengths of strokes and varied lengths of cards. This aluminum wheel has been used with remarkably good success on fast as well as slow moving engines. It can be attached very readily to the cylinder or any part of the bed, as is most convenient, by means of a small ear or knee; its action does not, thus arranged, encumber the action of the indicator.

The Planimeter is a very important instrument to use in connection with the measurement of cards or in fact of maps or plans. For the purpose of illustrating this matter, a cut of a good low priced instrument is here introduced. Formerly instruments were made with teh axis of the graduated roller wheel in a line with the tracing centre placed in the centre at the end of the bar on which the roller wheel was secured, consequently in changing the position of the roller wheel to meet the different lengths of cards required to be measured the angle of the axis in relation to the bar varied in proportion to its distance from the tracing point; in fact, there was but one position on the bar where the record was correct.

The writer discovered this discrepancy, and the cause, and made suggestions which led to the construction of the instrument as shown in the cut which is absolutely correct, whatever the position of the roller wheel may be on the bar, for the reason that the axis of the roller wheel is parallel with the bar, and is always in line with the tracing centre; this instrument as improved will give the result in square inches to the extent of ten square inches at one measurement, if set at the inch mark; if set the length of the diagram (the spring of indicator being 40) the result will be lbs. mean effective pressure; if any other spring be used a scale of factors accompany the instrument to suit the spring used.



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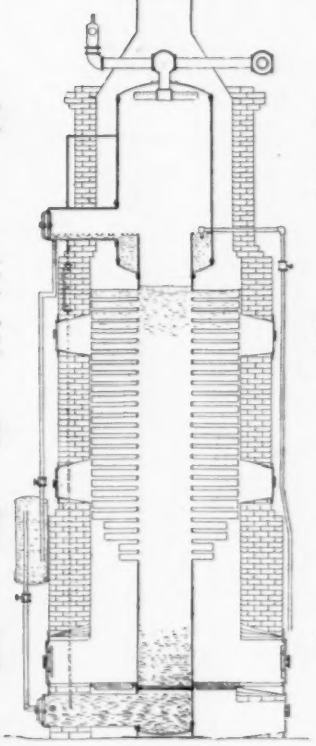

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ROOM 71.

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—PENNSYLVANIA, Pittston. The Pittston Knitting Mills were sold at sheriff's sale, March 19, on execution issued by the Miners' Saving Bank, of Pittston. The property was bid in W. H. McCartney and J. N. Anderson for $1269.50. The judgments aggregated about $30,000.

—RHODE ISLAND, Woonsocket. The No. 3 Mill of the Harris Woolen Co. has been sold to Michael Mullen, 60 Pond Street. The mill will not be put in operation, but will be occupied by the purchaser's son James Mullen, a furniture dealer.

—PENNSYLVANIA, Millville. The Bloomsburg Worsted Co. have accepted the inducements offered by the people of Millville to remove their mill to this place. The new company organized consists of James Haley, president; Joseph Millard, secretary; William Masters, treasurer, and Holmes Midgley, general manager.

—SOUTH CAROLINA, Union. The Union Cotton Mills Co. have filed notice with the secretary of state that they have increased their capital stock to $125,000. This is a new company which started production about March 1, on yarns and sheetings.

—WISCONSIN, Racine. It is reported that the works of the Racine Knitting Co. may be removed to Dixon, Ill., on a bonus of $10,000.

MILL NEWS.

Continued from Page 28.

—RHODE ISLAND, Westerly. The Crefeld Mills, W. W. Blades, superintendent, are putting in new boilers and making other improvements preparatory to starting up more machinery. They make fancy cotton goods, and for a long time have been practically idle, running but 36 of their 300 looms. Their new boilers are three in number and aggregate 450 h. p. They take the place of four old ones which had a capacity of 310 h. p.

—VIRGINIA, Petersburg. The Pocahontas Mills company are putting in new and modern machinery into their factory.

Woolen.

—CONNECTICUT, Norwalk. The Norwalk Woolen Co. shut down March 20, for the remainder of the week, to aid the work of boiler inspection. They have a new floor all laid preparatory to setting up a new Davis & Furber wire napping machine. The company also contemplates putting in a new turbine wheel to take the place of an old style wheel of large h. p. which has been in use for nearly 30 years and which is now greatly over crowded.

—KENTUCKY, Louisville. The Old Kentucky Woolen Mill is having put in a new set of 60-inch cards, built by the M. A. Furbush & Son Machine Co.

—MAINE, Bridgton. The Forest Mills Co. will build an addition to their mills.

—MASSACHUSETTS, Ware. A new 300 h. p. engine is being placed in the woolen mill of C. A. Stevens & Co.

—NEW HAMPSHIRE, Lebanon. A dye house is being built at the new Riverside Mill.

—NEW HAMPSHIRE, Marlboro. Richardson & Pease, of the Monadnock Blanket Co., have rebuilt their picker house, which was burned recently. They have a two-story brick building, 28 by 54 feet.

—ONTARIO, Simcoe. The Brooks Woolen Co. are to put in their mill three new looms to replace old ones. This is a 3-set mill, running on tweeds, blankets, etc.

—ONTARIO, Toronto. The Toronto Carpet Mfg. Co. contemplate enlarging their factory by putting up a new building.

—PENNSYLVANIA, Philadelphia. George Campbell & Co. are building a new two-story brick addition to their mill, which will be 90 by 40 feet. They manufacture worsted yarns.

—RHODE ISLAND, Woonsocket. The Lippitt Woolen Co. is replacing five 75 h. p. boilers with three 150 h. p. boilers. They expect to start up in two or three weeks, but with a cut-down in wages.

Knit.

—NORTH CAROLINA, Charlotte. The hosiery mill of R. M. Oates, Jr. has shut down for about a month, during which time the machinery will be repaired and rearranged.

Miscellaneous.

—CONNECTICUT, New Haven. The Forsyth Dyeing, Laundrying & Bleaching Co. are putting in an additional large washing machine. This company finds business rather dull especially in their dyeing department.

—OHIO, Cincinnati. E. H. Wuerdeman, 60 West 13th Street, will build a large addition to his dye house, which will double its capacity.

—RHODE ISLAND, Saylesville. Important improvements are being made at the Glenlyon Dye Works. Business has so increased at the dye works as to necessitate running over time to fill orders.

—VIRGINIA, Fredericksburg. The Virginia Silk Mills Co., which we reported would increase their capacity, inform us that they will build an addition, which will be a two-story brick building, 60x120 feet, and will put in 10,000 spindles. They manufacture organzine, and run by water power.

Mills Starting Up.

Cotton.

—CONNECTICUT, Tariffville. The Frank Wilkinson Mfg. Co. lace curtains, have started up on full time with a slight reduction in wages. The mill has been running half time for several months past.

—DELAWARE, New Castle. The Triton Cotton Mills started up March 28, after a shut down of two weeks.

—DELAWARE, Wilmington. The Arlington Mills Mfg. Co. started up their mills in part April 5, and on the 9th will commence running full capacity. During the shut-down repairs have been made.

—MASSACHUSETTS, Braintree. The Old Colony Cotton Co. have started up their mills under a new management. C. F. Copeland is president and agent, M. V. B. Benson, treasurer. They manufacture absorbent cotton.

—NEBRASKA, Kearney. The Kearney Cotton Mills Co. started up their mills April 9. New machinery has been added, and a larger force will be employed.

—NEW HAMPSHIRE, Great Falls. The mills of the Great Falls Mfg. Co. have started up, after being shut down for two weeks.

—NEW JERSEY, Millville. The Millville Mfg. Co. shirtings and linings, have resumed operations on full time, with a slight reduction in wages. This mill has been running half time.

—NORTH CAROLINA. The Graham cotton mills have started up. They have been idle for several months.

—PENNSYLVANIA, Frankford. Richard Thorpe, manufacture of damask, has started up his mill, after a two weeks' shut down.

—PENNSYLVANIA. Frankford. The new mills of Clarke & O'Neill, built last fall, manufacturing damask, were started up April 2 on full time.

—RHODE ISLAND, Pawtucket. The Union Wadding Co. started up their factory March 12, on full time. This mill has been closed for some time.

—RHODE ISLAND, Woonsocket. The Ray Cotton Mills, which have been shut down for six weeks, resumed operations.

—SOUTH CAROLINA, Chester. The Catawaba Mills Co. have started up their mills again.

—SOUTH CAROLINA, Stanley Creek. The Stanley Creek Cotton Mills, have resumed operations.

—TEXAS, Manchester Mills. The Manchester Cotton Mills have started up after being closed for several months. During the shut-down new machinery has been placed in the mill.

—TENNESSEE, Memphis. The Highland Mfg. Co. will resume operations. They have been shut down for six months, during which time they have remodeled their plant and increased their capital stock to $60,000.

—TENNESSEE, Nashville. The Phoenix Cotton Mill, the reorganization of the Nashville Cotton Mills, has resumed business in part, and it is expected that within a week they will be running full capacity.

—TEXAS, Denison. The Red River Cotton Mfg. Co. has been incorporated with capital of $350,000. The incorporators are C. S. Cobb, E. H. Hanna, D. J. M. Ford, W. B. Munson and J. B. McDougald. This company is organized to operate the Denison Cotton Mills.

Woolen.

—CONNECTICUT, Killingly. The Elmville Mill, C. D. & C. S. Chase, have resumed work with a 20 per cent. cut down in wages. This is a four-set plant manufacturing fancy cassimeres.

—CONNECTICUT, Mechanicsville. The woolen mill of Sayles & Washburn, which has been closed for nearly a year, will resume operations.

—CONNECTICUT, Rockville. The New England Co. have started up in part, and also the American Mills Co.

—CONNECTICUT, Stafford Springs. The Central Woolen Co. have started up their mills in part.

—DELAWARE, New Castle. The woolen mills of Jas. G. Knowles have resumed, after being idle for two weeks.

—ILLINOIS, Hanover. The Hanover Woolen Mills have started up, with a cut in the wages of from 10 to 20 per cent.

—ILLINOIS, Springfield. The Springfield Woolen Mills, 6 set, cassimeres, have started up with a full force.

—INDIANA, Evansville. The Evansville Woolen Mills will resume work April 9, on a 10 per cent. reduction in wages. This is a five set mill, making Kentucky jeans and doeskins.

—KENTUCKY, Louisville. The Beargrass Woolen Mill, which has been shut down since January, has started up in full. They manufacture knitting yarns.

—KENTUCKY, Louisville. The Pioneer Worsted Co. started up their mill March 19. They contemplate enlarging their mill in the near future.

—MAINE, Guilford. The Piscataquis Woolen Co. has started up its mills on full time.

—MAINE, Madison. The Madison Woolen Mills have started up in part, with a cut down in wages from 25 to 30 per cent. These mills have been shut down since August.

—MAINE, Skowhegan. The Coburn Woolen Mills started up in part March 19 and it will probably be several weeks before they run to their full capacity. A cut-down of from 5 to 20 per cent. has been made. They have been shut down for two weeks.

—MASSACHUSETTS, Andover. The Marland Mills, owned by M. T. Stevens & Sons, have resumed, after a few weeks' shut down, with a 15 per cent. cut down.

—MASSACHUSETTS, Blackinton. The wool department of the Blackinton Company mills will start up on full time, after a shut-down of two weeks. Their dyeing department which has been running on half time will resume in full.

—MASSACHUSETTS, Clinton. The Wekepeke Woolen Co. have started up their mill. This is a four-set plant, manufacturing yarns.

—MASSACHUSETTS, Fall River. The Jesse Eddy Mfg. Co. started up March 14, after an idleness of over five months.

—MASSACHUSETTS, Fitchburg. The Star Worsted Co. started running on full time March 12.

—MASSACHUSETTS, Fitchburg. The Fitchburg Worsted Co. are gradually started up their mill. They will make a reduction of from 5 to 10 per cent. in wages.

—MASSACHUSETTS, Huntington. The Highland Mills, 6 set, fancy cassimeres, are starting up. They have been idle for five months.

—MASSACHUSETTS, Lowell. The Middlesex Co. resumed operations in part April 2

—MASSACHUSETTS, North Adams. The dye house of the North Adams Mfg. Co. has started up, and the other departments will resume in a short time.

—MASSACHUSETTS, Shirley. The Shirley Woolen Co., it is expected, will start up their mills the first of April.

—MASSACHUSETTS, Ware. The Ware Woolen Mills, Chas. A. Stevens & Co., which have been shut down for seven months, started up April 2.

—NEW HAMPSHIRE, Dover. The lower mill of the Sawyer Woolen Mills, which has been shut down for some time, has resumed operations.

—NEW HAMPSHIRE, Milton. The blanket mill of H. H. Townsend, three set, has started up. New machinery has been placed in the mill.

—NEW YORK, Amsterdam. The Pioneer Knitting Co. has resumed operations. The knitting mill of the Lee Mfg. Co. has started up, and S. Sanford & Son will run their mill three days a week.

—NEW YORK, Clayville. The Empire Woolen Co. have started up in full after being shut down for several months.

—NEW YORK, Marcellus. The Crown Mills, 12 set, fancy cassimeres, resumed operations March 20, with full force.

—NEW YORK, Schaghticoke. Work has been resumed at the Schaghticoke Woolen Mills, under a reduction of 10 per cent.

—MASSACHUSETTS, North Adams. The Graham Woolen Mill has started up on full time, with an 18 per cent. reduction in wages.

—MASSACHUSETTS, Pittsfield. The card room of the Bel Air Mill has started up, but no definite plan has been arranged, nor is it known how long they will run.

—MASSACHUSETTS, Ware. The George H. Gilbert Mfg. Co., whose mills have been running on half time for eight months, have started up on full time, with no reduction in wages.

—ONTARIO, Marmora. The woolen mill at this place, owned by the Pearce Co., Ltd., has been leased by D. Mitchell, who will put it in operation.

—PENNSYLVANIA, Frankford. The Eastlake Mfg. Co. started up March 12 the dyeing and gimp departments of their mill on full time.

—PENNSYLVANIA, Landenberg. The Landenberg Worsted Mills have started up on full time.

—RHODE ISLAND, Burrillville. J. D. Nichols & Sons will start up their Oak Valley Woolen Mill on full time. This mill is a 5-set plant, having 18 broad looms, on fancy cassimeres. It has been shut down for ten weeks.

—RHODE ISLAND, Carolina. The Carolina Mills Co. have started up their mills under a reduction. They will run but two sections of looms at present, full time, on fancy cassimeres.

—RHODE ISLAND, Lymansville. The Lymanville Mills resumed operations, the management withdrawing the two-loom system, which caused the strike among the operatives.

—RHODE ISLAND, Providence. The Weybosset Mill started up in full March 19 running nine five days a week.

—RHODE ISLAND, Stafford Springs. The Warren Woolen Co. have started up their mills on full time, with a 10 per cent. reduction in wages.

—RHODE ISLAND, Westerly. The Westerly Woolen Co., W. O. & L. W. Arnold, 25 set, cassimeres, have been shut down for nearly four months. They are now preparing to start up, and hope soon to have 8 or 10 set in operation. Whether or not they will start as much machinery as this, and run what they do start on full time, will of course depend on the state of trade. A great many repairs have been made in and about the mills.

—RHODE ISLAND, Woonsocket. The mill of the Perserverance Worsted Co. started up April 2, after being shut down for two months. This mill operates 75 broad looms.

—SOUTH DAKOTA, Yankton. C. A. Johnson has purchased half interest in the Yankton Woolen Mill, and after an artesian well has been sunk for power, the mill will be put in operation. They manufacture flannels, blankets and yarns.

—VERMONT, Bridgewater. The woolen mill of F. S. Mackenzie started up on full time April 2.

—VERMONT, Winooski. The Burlington Woolen Mills, a 25-set plant, started up on full time March 26.

—WISCONSIN, Baraboo. The Island Woolen Mills, which have been idle for several months, have partially resumed operations, and they expect to resume in full in a short time

—WISCONSIN, Chippewa Falls. The woolen mill of the French Lumbering Co. will start up in a short time. A loom for fancy cassimeres has been placed in the mill.

Knit.

—CONNECTICUT, Shelton. Radcliffe Bros., manufacturers of underwear and hosiery, are now starting up their hosiery department and hope soon to start up their underwear machinery. They have had a long shut down.

—NEW HAMPSHIRE, Franklin. A partial settlement has been effected at the Walter Aiken estate, which will make it possible to start up the hosiery mill. It has only started in part, but will resume in full as soon as business warrants.

—NEW YORK, Amsterdam. The No. 1 knitting mill of A. V. Morris & Son has partially resumed operations.

—NEW YORK, Amsterdam. Work has been resumed in the mills of the Amsterdam Knitting Co. They have been closed for several months.

—NEW YORK, Cohoes. The West Side Knitting Co., which have been closed for several months, have resumed operations.

—NEW YORK, Cohoes. Work has been resumed in the knitting mill of Clarke & Holsapple.

—NEW YORK, Herkimer. The Mark Mfg. Co. will resume in part with a reduction in wages. This is a 10-set plant, manufacturing underwear. They have been shut down for six months.

—NEW YORK, Oswego. The Conde Knitting Mills, which have been closed for several months, have started up, running night and day.

—OHIO, Chillicothe. The "Famous" Knitting Works, which have been shut down for over a year, will start up.

—PENNSYLVANIA, Milroy. The Thompson Bros. have started up their hosiery mill with full force and full time. They have been idle for several months.

—PENNSYLVANIA, Pittston. The Luzerne Knitting Mills, Ellithorpe & House, props. resumed operations March 12.

—PENNSYLVANIA, Westchester. The Westchester Knitting Co. started up its factory March 19 with a full force.

—VERMONT, Bennington. The mills of the Valentine Knitting Co., 8 set, started up March 19 on full time, with a full force.

Silk.

—CONNECTICUT, Mansfield. O. S. Chaffee's silk mill resumed operations March 19 after an idleness of several months.

—CONNECTICUT, New London. The Incorporated New London Wash Silk Co. started up its new mill March 12.

—NEW JERSEY, Paterson. The Barbour Flax Spinning Co. opened their mills for work April 2, under a 10 per cent. reduction, though only a few of the employees returned to work. The Pioneer Silk Co. has agreed to the revised schedule of wages, and their mills have started up. The strike in James Simpson & Co.'s silk mill has been settled, and the employees returned to work on an average of 15 per cent. increase of wages.

—NEW YORK, College Point. The Rhenania Mills have resumed operations, the proprietor acceding to the demand of the strikers for higher wages.

—PENNSYLVANIA, Catasauqua. Work will be resumed in the mills of the Unicorn Silk Mfg. Co., April 2, with a full force.

Miscellaneous.

—CONNECTICUT, Stamford. The dye works at this place, a small plant and operated as the Stamford Fast Black Dyeing Works, on yarns and piece goods, by H. Hessler, is shortly to be started up by a new company, consisting of three New York men, one of whom is Walter Louis.

—MASSACHUSETTS, Whininsville. A notice has been posted at the Whitin Machine Works that they will increase their running time from forty hours a week to forty-eight. They have been running on short time since the first of February.

—NEW JERSEY, Paterson. The Dolphin Jute Mill started up April 2, with a full force of hands.

—RHODE ISLAND, Pawtucket. The Home Bleach & Dye Works, which were destroyed by fire over a year ago, and have been rebuilt on a much larger scale, started up Monday, March 19.

Mills Shutting Down.

Cotton.

—MASSACHUSETTS, Fall River. The King Phillip Mill No. 2 has shut down for an indefinite time. This closes the entire plant, Nos. 1 and 3 having been closed for some time.

Woolen.

—DELAWARE, New Castle. The woolen mills have closed for two weeks for an overhauling of machinery.

—INDIANA, La. Porte. The woolen mill of King & Fildes has been shut down. The unsettled condition of the tariff is said to be the cause.

—MASSACHUSETTS, Pittsfield. The carders, weavers and spinners of the Russell Mfg. Co. are on strike, and the mill will be closed indefinitely as soon as the goods now in process are finished.

—MASSACHUSETTS, Pittsfield. The lower mill of the J. L. & T. D. Peck Mfg. Co. has shut down.

—MASSACHUSETTS, South Groveland. The Groveland Mills have shut down for several weeks. During the time a new water wheel will be placed in the lower factory.

—MASSACHUSETTS, Uxbridge. The satinet mill of S. F. Scott has shut down indefinitely, owing to lack of orders.

—NEW YORK, Astoria. The Astoria Silk Mills shut down March 27, owing to a strike among the operatives.

—PENNSYLVANIA, Manayunk. The Glen Rock Mills, 4 set, fine hosiery and jacket yarns, have shut down for an indefinite period, owing to lack of orders.

—UTAH, Provo City. The Provo Woolen Mills Co. have closed their mills temporarily. This action was caused principally by the inability of the company to meet the demands of the employees, who petitioned to be paid in half cash and half merchandise and produce, instead of the small percentage of cash they have been receiving during the business depression. The company claiming to be unable to grant this, have closed the mill.

Knit.

—CONNECTICUT, Plainville. The Plainville Mfg. Co., manufacturers of ladies' and children's knit underwear, have closed their mills for a few weeks.

—MASSACHUSETTS, Lowell. The Pickering Knitting Co., whose mills have been running on reduced time, have shut down indefinitely.

—NEW YORK, Amsterdam. The knitting mill of Yund, Kennedy & Yund is preparing to shut down, also that of C. E. Warren & Co., at Rockton.

Silk.

—NEW JERSEY, Paterson. The silk mill of Ashley & Bailey is now closed. The operatives are on strike for an increase of wages.

Fires.

—MASSACHUSETTS, Fall River. Fire in the boiler room of the Chace Mill recently caused a loss of about $3000. Covered by insurance.

—MASSACHUSETTS, Westfield. The building occupied by the Textile Mfg. Co., makers of casket trimmings, was destroyed by fire March 28. The loss on the building is $5000 and on stock $30,000. Fully insured.

—PENNSYLVANIA, Philadelphia. The mills of Rowland & Schmidt, lace curtains, were destroyed by fire March 31. The loss on stock is estimated at $75,000, partially insured. Loss on building $5000, fully insured.

—PENNSYLVANIA, Philadelphia. The woolen mill operated by Carson & Hamill, trustees for the creditors of Albert Cranshaw & Co., was destroyed by fire March 25. They operated 965 looms on flannels, dress goods and ginghams. Loss $80,000 covered by insurance. Connected with this building was the three story annex occupied by the American Yarn Print Works, John Forrest, proprietor, whose stock was saturated with water, causing a loss of $10,000. Insured.

—PENNSYLVANIA, Manayunk. The Missouri Mills were damaged by fire March 11. to the extent of $50,000. The fire was supposed to be caused by spontaneous combustion.

—PENNSYLVANIA, Philadelphia. The brick building on Palethorp and Huntington Streets, owned and occupied by F. Rumpf & Bro., manufacturers of coverlets, shawls, table covers, etc., was damaged by fire to the extent of $50,000. The building was also occupied by the knit goods manufacturers, J. H. A. Klauder & Co. and Brown Bros. & Aberle Co. The aggregate loss on building, stock and machinery is said to be about $350,000. Partially insured. The mill will be rebuilt as soon as possible.

—TENNESSEE, Paris. The cotton mills of John T. Turner & Co., were recently destroyed by fire. Loss $20,000; insurance $10,000.

—VERMONT, North Pownal. Fire, starting in the mule room of the cotton mill of the North Pownal Mfg. Co., caused a loss of about $1000. Covered by insurance. This mill is owned by Gallup & Houghton, of North Adams, Mass.

Failures and Suspensions.

—CONNECTICUT, Norwalk. The Union Mfg. Co., making cassimeres and felt cloths, 20 set, made an assignment March 19th, to Alexander Semple, the present superintendent. It is expected that a reorganization will be effected which will be satisfactory to creditors and stockholders.

—IOWA, Carroll. The Acme Knitting Works have been placed in the hands of a receiver, A. U. Quint. Financial trouble between the stockholders and the lessee, Theo. Fettig, is said to be the cause.

—NEW JERSEY, Paterson. William Ryle, president of the Pioneer Silk Mfg. Co., has been appointed receiver of the George Morlot silk dyeing establishment. Mr. Morlot when last heard from was in San Francisco, and his counsel here expect, in a few days, to receive power of attorney to act for him, which will greatly facilitate the settling up of the business. It is expected that the business will not be continued, but will be sold at receiver's sale.

Facts and Gossip.

—ARKANSAS, Little Rock. The Little Rock Cotton Mills have been sold to Maxwell Coffin and a number of Eastern capitalists, who it is expected will start up the mills in a short time.

—CONNECTICUT, New Haven. A new knit goods establishment will be started at this place about May 1st. Mr. J. J. Gouchee, we believe, is chiefly interested, and he is now in New York City for three weeks or more.

—MASSACHUSETTS, Blackstone. R. Waterhouse, formerly superintendent of the Blackstone Woolen Co., has leased the No. 2 Mill of Evans, Seagrave & Co., and will weave goods for the Riverside Mills of Providence. The weavers of the Riverside Mills are on strike against the two-loom system, and the management, not willing to change back, will have their weaving done outside.

—MASSACHUSETTS, Boston. The lawyers of both sides of the case are now taking testimony in Boston, in the suit of the American Napping Machine Co. against H. S. Greene & Son, of Lawrence, Mass., for infringements of the patents owned, it is claimed, by the American Napping Machine Co. The hearings commenced on the 12th inst. Edwin H. Brown, of New York, represents the American Napping Machine Co.'s legal interests, and John L. S. Roberts, of Boston, represents H. S. Greene & Son.

—MASSACHUSETTS, Farley. The Orange Knitting Co. has been reorganized. J. B. Farley, E. C. Tolman and George E. Monroe have withdrawn, and in the future the business will be conducted by D. E. Farley and George R. Ruffle.

READY REFERENCE LIST

FOR

Textile Products and Raw Stock.

This index is intended to be of special value for instant reference, as to sources of supply for any desired line of domestic dry goods. It is our intention to have in each line a good representative list of the principal, and also smaller manufacturers, and to increase the list largely, meantime securing the greatest accuracy possible.

For smaller and odd lines it will be made of special value, and new headings added as experience and contact with buyers may suggest.

It is our intent to make this of positive value to both buyer and manufacturer or commission merchant, and all suggestions looking to increasing its usefulness will be carefully considered.

Correspondence solicited with those who desire their addresses to appear.

COTTON GOODS.

Awning Stripes.

Sibley Mfg Co, Augusta, Ga.

Batting.

Massasoit Mfg Co, Fall River, Mass.

Cheviots.

Slatersville Mills, Slatersville, R. I.

Cotton Blankets.

Tremont & Suffolk Mills, Lowell, Mass.

Colored Cotton Goods.

Barnaby Mfg Co, Fall River, Mass.
Lewiston Mill Co, Lewiston, Me.

Corset Nets, Summer.

Wachusett Mills, Worcester, Mass.

Denims.

Pemberton Co, Lawrence, Mass.
White Bros, Winchendon Springs, Mass.

Domets, Plain and Fancy.

Eastwood Cotton Mill, Fall River, Mass.
Tremont & Suffolk Mills, Lowell, Mass.

Domets. F. M. D.

Pemberton Co, Lawrence, Mass.

Fancy Cotton Goods.

Berkshire Cotton Mfg Co, Adams, Mass.
Potomska Mills, New Bedford, Mass.
Salmon Falls Mfg Co, Salmon Falls, N. H.
Wachusett Mills, Worcester, Mass.

Fancy Embroidery Fabrics.

Wachusett Mills, Worcester, Mass.

Fine Shirtings and Dress Fabrics

Aberfoyle Mfg Co, Chester, Pa.
Appleton Co, Lowell, Mass
Williamsville Mfg Co, Killingly Ct.

Flannels, Cotton.

Elizabeth Poole Mills, Taunton, Mass.
Hamilton Mfg Co, Lowell, Mass.
Tremont & Suffolk Mills, Lowell, Mass.

Flannels, Hathaway.

Methuen Co, Methuen, Mass.

Ginghams.

Slatersville Mills, Slatersville, R. I.

Lawns.

Continental Mills, Lewiston, Me.
Potomska Mills, New Bedford, Mass.

Lenos.

Pequot Mills, Montville, Ct,
Wachusett Mills, Worcester, Mass.

Machinery Wipers.

Franklin Cotton Mfg. Co., Franklin, Mass.
Massasoit Mfg Co. Fall River, Mass.

Outing Cloth.

Tremont & Suffolk Mills, Lowell, Mass.

Prints.

Allen's Print Works, Providence, R. I.
American Print Works, Fall River, Mass.
Cocheco Print Works, Dover, N H.

Prints.

Dutchess Co, Wappinger's Falls, N Y.
Eddystone Mfg Co, Chester, Pa.
Hamilton Mfg Co, Lowell, Mass.
Merrimack Print Wks, Lowell, Mass.
Pacific Mills, Lawrence, Mass.
Passaic Print Works, Passaic, N J.
Windsor Co, N Adams, Mass.

Sateens.

Berkshire Cotton Mfg Co, Adams, Mass.
Continental Mills, Lewiston, Me.
Metacomet Mfg Co, Fall River, Mass.
Potomska Mills, New Bedford, Mass.
Salmon Falls Mfg Co, Salmon Falls N H.

Scrims.

Wachusett Mills, Worcester, Mass.

Sheetings. Brown and Bleached.

Continental Mills, Lewiston, Me.

Skirts, Fancy.

Methuen Co, Methuen, Mass.

Tickings.

Hamilton Mfg Co, Lowell, Mass.
Pemberton Co, Lawrence, Mass.

Twills.

Continental Mills, Lewiston, Me.

Wide Cotton Goods.

Wampanoag Mills, Fall River, Mass.

WOOLEN GOODS.

Beavers.

Collins, M, Woolen Mills, Collinsville, Mass.

Blankets.

Cordaville Woolen Co, Cordaville, Mass.
New Albany Woolen & Cotton Mills, New Albany, Ind.
Northern Ohio Blanket Mills, Cleveland, O.
North Star Woolen Mill, Minneapolis, Minn.
Rock Falls Woolen Co, Middletown, Ct.
Winthrop Mills Co, Winthrop, Me.

Carriage Linings.

Dustin Island Woolen Mill, Penacook, N. H.

Cashmerettes.

Maile & Frost Mfg Co. Hinsdale, N H.
Hinsdale Woolen Mill, Hinsdale, N H.

Cassimeres.

Blackinton, S. Wm Co. Blackinton, Mass.
Chase, Jno & Sons, Webster, Mass
Devonshire Mills, Goff's Falls, N H.
Old Kentucky Woolen Mills Co, Louisville, Ky.
Rock Mfg. Co, Rockville, Ct.
Sawyer Woolen Mills, Dover, N. H.

Cheviots.

Sawyer Woolen Mills, Dover, N. H.
Slater Woolen Co, Webster, Mass.
Talbot Mills, N. Billerica, Mass.

Dress Goods.

Atlantic Mills, Providence, R I.
Brown & Ackroyd, Lawrence, Mass.
Sagehomme & Byers, No Andover, Mass.
Washington Mills, Lawrence, Mass.

Felts.

City Mills Co, City Mills, Mass.
Dolge, Alfred & Son, 110 East 14th St, New York.
Piqua Wm Mills (for paper mks), Piqua, O.
Union Mfg Co, Norwalk, Ct.

Flannels.

Allen, L L & Bros, Rochester N Y, and 99 Franklin St, N Y.
Hayward, H T, Franklin, Mass.
Jamestown Woolen Mills, Jamestown, N J.
Kay, Thos, Woolen Mill Co, Salem, Ore.
Kent, Thomas, Mfg Co, Clifton Heights, Pa.
Knoxville Woolen Mill, Knoxville, Ia.
Louisville Woolen Mills, Madison, Ind.
Middlesex Co, Lowell, Mass.
Mascoma Flannel Co, Lebanon, N. H.
Olney, Geo W, Cherry Valley, Mass.
Slater Woolen Co, Webster, Mass.
Stirling Mills, Lowell, Mass.
Talbot Mills, N Billerica, Mass.

Horse Blankets, Etc.

Monadnock Blanket Co, Marlboro, N H.
Ray Fabric Mills, Franklin, Mass.
Riley, Wm B, & Co, 507 Arch St, Phila, Pa.
Rockfall Woolen Co, Middletown, Conn.
Troy Blanket Mills, Troy, N H.

Jeans Pants.

Henderson Woolen Mills, Henderson Ky, "Celebrated Bull Breeches."

Kerseys.

Ashland Mfg Co, Wetheredville, Md.
Dobson, Jno & Jas Co, 28 N Front St, Phila
New Albany Woolen & Cotton Mills, New Albany, Ind.
Worumbo Mills, Lisbon Falls, Me.

Meltons.

Globe Mills, Utica, N Y.
Germania Mills, Holyoke, Mass.
Ottaquechee Woolen Co, N Hartland, Vt.
Pomeroy, Theo L, Pittsfield, Mass.

Military Goods.

Sawyer Woolen Mills, Dover, N H.
Charlottesville Wln Mill, Charlottesville, Va.

Overcoatings.

Georges River Mills, Warren, Me.
Washington Mills, Lawrence, Mass.
Worumbo Mills, Lisbon Falls, Me.

Repellants.

Cumberland Mills, Lewiston, Me.
Hudson River Woolen Mills, Newburgh, N Y.
Robinson Mfg Co, Oxford, Me.
Winthrop Mills Co, Winthrop, Me.

Satinets.

Abbot Woolen Mills, Abbot P O, Me.
Aldrich, C T, Milbury, Mass.
Bigelow & Darling, Worcester, Mass.
Caryville Mills, Caryville, Mass.
Darling, Newton, Cherry Valley, Mass.
Kauffman, W H, Athol, Mass.
Quinapoxet Woolen Mills, Quinapoxet, Mass.
Tebo, D E, Athol, Mass.
Thayer, E D, Jr, Worcester, Mass.
Wood, D F, Northboro, Mass.

Worsted Suitings and Trouserings.

Chase, Jno & Sons, Webster, Mass.
Fulton Worsted Mills, Oswego, N Y.
Lymansville Co, of 61 Leonard St, N Y.
National Worsted Mills, Providence, R I.
Perseverance Worsted Co, Woonsocket, R I. C B Fillebrown & Co, Selling Agts, Boston and New York.
Riverside Mills, Providence, R I.
Rock Mfg Co, Rockville, Ct,
Sayles, Fred L, & Co, Pascoag, R I.
Sawyer, Woolen Mills, Dover, N H.
Simpson & Kirkaldy, Woonsocket, R I.
Springville Mfg Co, Rockville, Ct.
Washington Mills, Lawrence, Mass.

Union Cass.

Taft, McKean & Co, Caryville, Mass.
Douglass Woolen Co, E Douglass, Mass.
Jefferson Mfg Co, Jefferson, Mass.
Northboro Mills, Northboro, Mass.
Logansport Woolen Mill, Logansport, Ind.
Manchester Woolen Mills, Manchester, Ia.
Hoosier Woolen Co, Indianapolis, Ind.

KNIT GOODS.

Athletic and Sporting Goods.

Roper, R G & Co, Highlandville, Mass.
Wye, Geo E, Needham, Mass.

Cardigan Jackets.

Baron, S & Co, 90 Franklin St, New York City.
Townsend, Edward, 3421 Waterloo St, Phil.
Woodcock Bros, Germantown, Pa.

Children's Seamless Ribbed Waists.

Nazareth Mfg Co, Nazareth, Pa.

Combination Suits.

Holmes Co, 109 Kingston St, Boston, Mass.

Eider Down.

French & Ward, Stoughton, Mass.

Fancy Knit Flannels.

French & Ward, Stoughton, Mass.

Fancy Knit Goods.

Barrows, David & Co. Nicetown, Phil.
Why Bros & Co, Germantown, Pa.

Fleece and Plush Linings.

Franklin Knitting Co, Franklin, Mass.

Hosiery.

Contoocook Mills Co, Hillsboro Bridge, N H
Ellis, G W, 149 Race St, Phila, Pa.
Lowell Hosiery Co, Lowell, Mass.
Pierce Thos A & Co, 1720 N 5th St, Phila.
Renfrew Mfg Co, Adams and Coral Sts, Philadelphia, Pa.
Sulloway Mills, Franklin, N H.

Knit Wrists for Glove Mfrs,

W D Gregory, 17 Kingsboro Ave, Gloversville, N Y.

Gloves, Mitts and Mittens.

Armstrong, Wm, Highlandville, Mass.
Conyers, Button & Co, Germantown, Pa.
Gloversville Hair Co. Ltd, Gloversville, N Y. (Also fulled mittens.)
Lyons, Jas, Highlandville, Mass.
Royal Knitting Co, Johnstown, N Y.
Western Knitting Mills, Detroit, Mich.

Mittens, Ladies' and Children's.

White, Isaac, Highlandville, Mass.

Mittens, Leggings and Equestrian Tights.

Max Lowenthal, Rochester, N Y.

Overshirts.

Groat, Edwin, Hudson, N Y.
Liddle Jno & W A, Amsterdam, N Y.

Ribbed Hosiery.

Chicago, Rockford Hosiery Co, Kenosha, Wis, Rockford, Ill.
Nazareth Mfg Co, Nazareth, Pa.

Scotch Caps.

Bayliss, Alfred, Utica, N Y.

Silk Hosiery.

Dalby, Thos, Watertown, Mass.
Friedman, H & Co, 29 Bank St, Cleveland, O.
Nonotuck Silk Co, Florence, Mass.

Silk Mittens.

Wye Bros, Needham, Mass.

Skirts and Capes, Hand Knit.

John Davenport, Highlandville, Mass.

Surgical Elastic Goods.

Gorse, Wm, Highlandville, Mass.

Sweaters.

Hub Mfg & Knitting Co, 119 Summer St, Boston.
Toone, Wm E, Highlandville, Mass.

Underwear.

Bailey, Herbert, Claremont, N H.
Commercial Knitting Mills, Troy, N Y.
Contoocook Mills Co, Hillsboro Bridge, N H.
Crane & Waters Co, Milbury, Mass.
Jaros Hygienic Underwear Co, 831 Broadway, New York.
Jones, Lewis Bristol, Pa.
Lawrence Mfg Co, Lowell, Mass.
Miami Valley Knig Mills, I & c, Hamilton, O.
Mosely & Co, Highlandville, Mass.
Piqua Hosiery Co, ladies & children, Piqua, O
Victor Knitting Mills, Little Falls, N Y.

Underwear, Men's.

Titus Shead Co, Little Falls, N Y.

Underwear, Infant's and Union Suits.

Max Lowenthal, Rochester, N Y.

Underwear, Men's and Women's Medium and Light Weight.

Harder Knitting Co, Hudson, N Y. Our specialty is 12 lbs. white Merino highest grade. Goods sold to Jobbers only. No agents. Address all inquiries direct to mill.

SILK GOODS.

Broad Silks.

Cheney Bros, S Manchester, Ct.
Haskell Silk Co, Westbrook, Me.
Natchoug Silk Co, Willimantic, Ct.

Braids, Trimmings, Etc.

Cheney Bros, S Manchester, Ct.
Friedburger S. 1227 Callowhill St, Phil, Pa.
Natchoug Silk Co, Willimantic, Ct

Knitting and Thread Yarns.

Champlain Silk Mills, Whitehall, N Y.

Organzines and Trams.

Cheney Bros, S Manchester Ct.
Saquoit Silk Mfg Co, 76 Chauncy St, Boston

Ribbons.

Cheney Bros, S Manchester, Ct.
Dodds, John, Paterson, N J.
Loth, Joseph & Co, 65 Greene St, N Y.
Rhenania Mills, office, 45 Greene St, N Y.
Strange, The Wm Co, Paterson, N J.
Weddeigen, Louis & Co, 474 Broom St, NY

Satins.

Cheney Bros, S Manchester, Ct.
Haskell Silk Co, Westbrook, Me.

Upholstery Goods.

Horstmann, Wm H & Sons, 500 Cherry St, Phila, Pa.
Hoyle, Harrison & Kaye, Lehigh Av, Phila.
Hunter, W, Jr & CO, Mascher, York St, Phila.
Lyons Silk & Tape Co, Paterson, N J.
Nepaul Silk Tap Mills, 400 Cambria St, Phila.

Upholstery Trimmings.

Maguire, Wm J, 39-41 So. 2d St, Camden, N J.

Sewings and Twists.

Champlain Silk Mills, Whitehall, N Y.
Griswold Worsted Co 224 Chestnut St, Phila.
Natchoug Silk Co, Willimantic, Ct.
Nonotuck Silk Co, 72 Green St, New York.
Saquoit Silk Mfg Co, 76 Chauncy St, Boston.
Walmsley, Philip, 34 Green St, N Y.

Silk Throwsters.

Ryle, John C & Co, Stroudsburg, Pa.
Ryle Wm, & Co, 34 Howard St, N Y.
Seaton & Baines, Allentown, Pa.
Strauss, F A, 33 Greene St, N Y.
Taylor, James, 116 River St, Paterson, N J.
Turner, A G, Willimantic, Ct.

MISCELLANEOUS.

Burlaps.

Rogers, Gorham, & Co, 20 Federal St, Boston.

Clothes Lines.

Boscowan Mills, Penacook, N H.

Crash, Linen.

Stevens Linen Wks, Webster, Mass.

Fish Lines.

Gates, Israel, Canonchet, R I.
Lawrence Line Co, Lawrence, Mass.
Meyer, John C & Co, 289 Devonshire St Boston
Pawtucket Braided Line Co, Pawtucket, R I.

Boston Finishing Works

WILLIAMSTOWN, MASS.

BLEACHERS, DYERS AND FINISHERS

Of Pure Finish Shirtings, Sheetings, Canton Flannels and Filled Goods. Also Silesias, Satteens, Corset Jeans, Cambrics, Sleeve Linings, Pocketings, Flanneletts, and all descriptions of Dyed Goods.

NAPPING A SPECIALTY.

Being equipped with the French and other Foreign and Domestic Napping Machines, we are prepared to give any kind of Nap required, including the French Flannel Finish.

Felt Shoes and Slippers.

Dolge, Alfred.
Matteawan Felting Co, Easton, Pa.

Fire Hose.

Boston Woven Hose & Rubber Co, Cambridgeport, Mass.
Eureka Fire Hose Co, Henry and Cranberry Sts, Brooklyn, N Y.
Fabric Fire Hose Co, Warwick, N Y.

Hair Cloth.

Pawtucket Hair Cloth Co, Pawtucket, R I.

Hammocks and Horse Fly Nets.

F. C. Langewald & Son, Williamsett, Mass.

Lacings for Knit Goods.

Hepner & Horwitz, 84 Leonard St, N Y.

Narrow Fabrics.

Krout & Fite, 2032-40 Mascher St, Phila.

Pearl Buttons.

Bloomenthal, B & Co. 386 Broadway, NY.
Crouse Hy W, 347 Broadway, N Y.
Webb, Jos, Nassau Works, Newark, N J.
Whatten, Newey & Whatton, Nassau Works, Newark, N J.

Tapes and Braids.

Chadburn & Moore, Springfield, Mass, and 130 Bedford St., Boston.
Fleming & Chapin, 215 Church St, Phila.
Witter, H M, & Co, Worcester, Mass.

Webbing.

Excelsior Web and Tape Co, Hop River, Ct.
Witter, H M. & Co, Worcester, Mass.

Wicking (Ball).

Massasoit Mfg Co, Fall River, Mass.

YARNS, THREADS, ETC.

Banding.

Boscowen Mills, Penacook, N H.
Heywood, M, & Co, Fall River, Mass.
Moore, C, 12 S 5th St, Phila.
Small Bros, Fall River, Mass.
Whittier Cotton Mills, Lowell, Mass.

Carpet Yarns.

Globe Cotton Mills, Augusta, Ga.

Colored Cotton Yarns.

Santord Spinning Co, Fall River.

Cotton Warps.

Bennett & Van Valkenburg, Athol, Mass.
Chadwick, Jas, & Bro, Ltd, 503 Broome St, N Y
Clark Wm Thread Co, Westerly, R I.
Fleming & Chapin, 215 Church St., Phila. Pa.
Grant Yarn Co, Fitchburg, Mass.
Greene & Daniels Mfg Co, Pawtucket, R I.
Harrison Yarn & Dyeing Co, Pawtucket, R I.
Holmes, J C. Co. Springfield, Vt.
Howland Mills Corp, New Bedford, Mass.
Rhodes, John, Warp Co, Milbury, Mass.
Whittier Cotton Mills, Lowell, Mass.

Embroidery Yarns.

Champlain Silk Mills, Whitehall, N Y.

Fine Cotton Yarns.

Chadwick, Jas & Bro, Ltd, 503 Broome St, NY
Clark, Wm, Thread Co, Westerly, R. I.
Globe Yarn Mills, Fall River, Mass.
Greene & Daniels Mfg Co, Pawtucket, R I.
Hadley Co, 95 Milk St, Boston.
Howland Mills Corp, New Bedford, Mass.
Kerr Thread Co, Fall River, and 29 Mercer St.
Littlefield Mfg. Co. Pawtucket, R I.
New Bedford Mfg Co, New Bedford, Mass.
Orswell Mills, Fitchburg, Mass.
Strauss, F A, 93 Greene St, N Y.
Wilkesbarre Lace Mfg. Co, Wilkesbarre, Pa.

Fire Hose Cord.

Boscowen Mills, Penacook, N H.
Whittier Cotton Mills, Lowell, Mass.

Glazed Yarns.

Blodgett & Orswell, Pawtucket, R. I.
Chadwick, Jas & Bro, Ltd, 503 Broome St, NY.
Kerr Thread Co, Fall River and 29 Mercer St, N Y.
Warren, W, Thread Wks, Westfield, Mass.
Whittier Cotton Mills, Lowell, Mass.

Harness Twines.

Chadwick, Jas & Co, Ltd, 503 Broome St, N Y.
Hadley Co, 95 Milk St, Boston.
Kerr Thread Co Fall River, and 29 Mercer St, N Y.
Moore, C, 12 S 5th St, Phila.
Whittier Cotton Mills, Lowell, Mass.

Hosiery and Knitting Yarns.

Boscowen Mills, Penacook, N H.
Chadwick, Jas & Bro, 503 Broome St, N Y.
Cutler Mfg Co, Warren, R I.
Globe Yarn Mills, Fall River, Mass.
Goodwill & Ashworth, Jamestown, N Y.
Grant Yarn Co, Fitchburg, Mass.
Greene & Daniels Mfg Co, Pawtucket, R I.
Jenckes, E, Mfg Co, Pawtucket, R I.
Kerr Thd Co, Cop Singles Fall River, Mass.

Hosiery and Knitting yarns.

Littlefield Mfg. Co, Pawtucket, R I.
Mason, Wm, Mfg Co, Providence, R I.
Nemasket Mills, Taunton, Mass.
Regan, Jas J, Rockville, Ct.
Orswell Mills, Fitchburg, Mass.
Rotch Spinning Corp, New Bedford, Mass.
Sanford Spinning Co, Fall River.
Winterbottom, Hyde & Co, 223 Chestnut St, Phila.
Warren, W, Thread Wks, Westfield, Mass.
Whittier Cotton Mills, Lowell, Mass.
Wilkesbarre Lace Mfg. Co., Wilkesbarre, Pa.

Jute Yarns.

Lane, J H, & Co, 110 Worth St, N Y.

Lisle Threads.

Chadwick, Jas & Co, Ltd, 503 Broome St, N Y.
Warren, W, Thread Wks, Westfield, Mass.

Novelty Yarns.

Sanford Spinning Co, Fall River, Mass.

Tinsels, Silk Noil and Fancy Yarns.

Cranston Worsted Mills, Bristol, R I.
Strauss, F A, 93 Greene St, N Y.

Silk Yarns.

Champlain Silk Mills, Whitehall, N Y.
Cheney Bros, Manchester, Ct.
Griswold Wstd Co, Ld, 322 Chestnut St, Phila.
Walmsley, Philip, 34 Green St, N Y.
Wm Ryle & Co, 54 Howard St, N Y.
Saquoit Silk Mfg Co, 76 Chauncy St, Boston.
Taff, Alfred, 69 Mercer St, N Y

Threads.

Chadwick, Jas, & Bro, 503 Broome St, N Y.
Clark Wm Thread Co, Westerly, R I.
Greene & Daniels Mfg Co, Pawtucket, R I.
Hadley Co, 95 Milk St, Boston.
Kerr Thread Co, Fall River, and 29 Mercer St. N Y.
Moore, C, & Co, 12 S 5th St, Phila.
Warren, W, Thread Wks, Westfield, Mass.

Tussah and Chappe,

Strauss, F A, 93 Greene St, N Y.

Twines.

Boscowen Mills, Penacook, N H.
Lord, R W & Co, Kennebunk, Me.
Ware, Bruce R & Co, 200A Devonshire St, Boston, Mass.

Worsted Yarns.

Abegg & Rusch, 90 & 94 Grand St, N Y.
Allegheny Worsted Mills, Allegheny and Trenton Aves, Phila, Pa.
Goodwill, & Ashworth, Jamestown, N Y.
Ball, Thomas H, 236 Chestnut St, Phila, Pa.
Continental Worsted Mills, 2100 Washington Ave, Phila.
Cranston Worsted Mills, Bristol, R I.
Johnston & Farie, 132 South 3d St, Phila.
Griswold Worsted Co, 322 Chestnut St, Phila.
Landenburgh Wstd Mills, Landenburgh, Pa.
Providence Worsted Mills, Providence, R I.
Strauss, F A, 93 Greene St, N Y.
Valley Worsted Mills, Providence, R I.
Washington Mills Co, Lawrence, Mass.
Woonsocket Worsted Mills, Woonsocket, R I;

Woolen and Merino Yarns.

Brown, Wilson H, & Bro, Germantown, Pa.
Johnston & Farie, 132 South 3d St, Phila.
Guerin Spinning Co, Woonsocket, R I.
Sparta Woolen Mill, Sparta, Ill.

Yarn Dealers.

Abegg & Rusch, 90-94 Grand St, N Y.
Chadwick, Jas & Bro, Ltd, 503 Broome St, N Y.
Croll, Albert Irvine, 85 Essex St, Boston.
Fox, H C, 45 Strawberry St, Phila.
Home Bleach & Dye Wks. Pawtucket, R I.
Johnston & Farie, 132 South 3d St. Phila.

Yarn Dealers.

King, Alex, & Co, 54 Leonard St, N Y.
Lane, J H & Co 110 Worth St, N Y.
Mitchell, Jas E, & Co, 124 Chestnut St, Phila; 53 Summer St, Boston.
Robbins, Chas B, 56 Reade St, N Y.
Sampson, O H, & Co, Boston, N Y, Phila.
Sawyer, Manning & Co, 86 Franklin St, N Y.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston.
Taff, Alfred, 69 Mercer St, N Y.
Tillinghast, Stiles & Co, 20 Market Sq, Providence, R I
Whiteside, Jas, 96 Spring St, N Y.
Winterbottom, Hyde & Co, 225 Chestnut St, Phila.

Mohair Yarns.

Thompson, Sidney, 66 Grand St, N Y.

DYERS, BLEACHERS, FINISHERS, ETC.

Carbonizers, Wool,

Clegg & Bro, Howard & Berks Sts, Phil, Pa
Hartley, F. Lawrence, Mass.

Cotton Dyers, Bleachers and Finishers.

Boston Finishing Wks, Williamstown, Mass.
Danvers Bleachery & Dye Wks, Peabody, Ms
Fall River Bleachery, Fall River, Mass.
Farwell Bleachery, Lawrence, Mass.
Greene & Daniels Mfg Co, Pawtucket, R I.
Harrison Yarn & Dyeing Co, Pawtucket, R I.
Home Bleach & Dye Wks, Pawtucket, R I.
Lewiston Bichy & Dye Wks, Lewiston, Me.
Lorimer, The Wm H Sons' Co, Ontario and Lawrence Sts, Phila.
Mason, R D, Co, Pawtucket, R I,
Pawtucket Dyg & Bichg Co, Pawtucket, R I.
Rockland Bleach & Dye Wks, Brooklandville, Baltimore County, Md.
Waltham Bichg & Dye Wks, Waltham, Mass
Way Dyeing & Finishing Co. Phila.

Silk Dyers and Finishers.

Knipscher & Mass, Gun Mill, Paterson, N J.

Yarn Dyers and Bleachers.

Cranston Worsted Mills, Bristol, R I.,
Haney, T G, & Co, Jewett City, Ct.
Home Bleach & Dye Wks, Pawtucket, R I.
Mason, R D, & Co, Pawtucket, R I.
Riverside Dye Wks, Riverside, N J.
Warren, W, Thread Wks, Westfield, Mass.
Worcester Bich & Dye Wks, Worcester, Mass.

Dyers and Finishers.

Haney, T G, & Co (hosiery), Jewett City, Ct.
Riverside Dye Wks (hosiery), Riverside N J.

Finishers of Worsted and Woolen Goods,

Schwarzwaelder, L, 225 New St, Philadelphia

Block Printers.

Lexington Print Works, Canton, Mass.

Nap Finishers.

Boston Finish'g Wks, Williamstown, Mass.
Newburgh Bleachery, Newburgh, N Y.

Turkey Red.

Nashoba Mfg Co, Ayer, Mass.

RAW STOCK.

Cotton.

Abbreviations: b, buyer; br, broker; f, factor; c, commission; d, dealer.

BOSTON.

Barry, Thayer & Co, 32 India St.
Beebe, L & Co, d, 89 State St.
Storrow, Chas & Co, b, 33 State St.
Weld, Stephen M & Co, b, 89 State St.

NEW YORK.

Brady, Thos H, br 216 Church St, N Y.
Capelle, H, Rothschild Bldg, N Y.
Latham, Alexander & Co, 23, 14 Wall St, N Y.

PROVIDENCE.

Deming, R H. & Co, br, 5 S Water St,
Hazard Cotton Co, Jeffrey Hazard, pres, 11 Market Sq.
Reynolds, F W, & Co, 13 So Water St,
Rhodes, J P & Co, br.
Wilcox, L Morton & Co, br, 28 No Main St

Bowles, Wm & Sons, Memphis, Tenn.
Gunther M H, b, 316 W Main St, Louisville, Ky.

Egyptian Cotton.

Blaisdell, Saml, Jr, Co, Chicopee, Mass.
Capelle, H, Rothschild Bldg, N. Y.

Cotton Waste.

Barlow, M T, 108 Pocasset St, Fall River, Mass
Coburn, Walter & Co, Lowell, Mass.
Hill & Cutler, 367 Atlantic Ave, Boston.
Hull, Saml E Millbury Mass.
Massasoit Mfg Co. Fall River, Mass
Mayo, A A & Co, Springfield, Mass.
Olmstead & Tuttle Co, Chicopee, Mass.
Remick, T & Co, 489 Atlantic Ave, Boston.
Thorpe, John F, 185 Summer St, Boston, Mass

Peruvian Cotton.

Barry, Thayer & Co, 32 India St, Boston.
Grace, W R & Co, T H Higgins, Agt, 84 W Broadway, New York.

Silk Waste.

Heath, C A, & Co, 74 Grand St, N Y.
Heath, C A, & Co, Paterson, N J
Taff, Alfred, 69 Mercer St, N Y.

Australian Wool.

Hartley, Fred, 612 Atlantic Ave, Boston.

Wool.

Abreviations: d, dealer; c, commission; br, broker; p, puller; b, buyer; imp, importer; s, scourer.

BOSTON.

Bienenstok, S & Co. c, 204-210 Essex St.
Bond, G W & Co, b, 202 Federal St.
Brown & Adams, c, 152 Federal St.
Clark, R B, 250 Congress St, c and br.
Cordingly, W S & F, 359 Atlantic Ave.
Cross, Chas F & Co., d, 177 Purchase St
Eisenmann Bros. c, 287 & 289 Congress St.
Hallowell & Donald, c, 556 Atlantic Ave.
Harding & Caverly, c, 301 Congress St.
Hemmenway & Browne, imp, 87 Milk St

Luce & Manning, c, 138 Federal St.

Macnaughtan Co, c, 102 Federal St.
Wilder, Walter & Co. 170 Summer St, Boston.
Wright, John G, 612 Atlantic Ave.
Blaisdell, S, Jr, & Co, Chicopee, Mass.

PHILADELPHIA.

Fry, Geo B, & Co, 223 No Front St, Phila.
Halvey, T F, Imp 50 & 52 No. Front St.
Hartley, Fred, 30 Letitia St.
Heston, H B, & Co, d, 118 Chestnut St.
Kitchen, Jas G, & Co, 53 N Front St.
Patton, Geo W, & Co, 38 N Front St.

Webb, Chas J, & Co. 156 N Front St

Wood Bros & Co, imp, 27 N Front St.

NEW YORK.

Basch, Isaac, imp, 155 Duane St.
Grace, W R, & Co, Hanover Sq, N Y.

Macnaughtan Co, 212, Church St.

Mauger & Avery, br, c, 107 Reade St.
Mills & Co, br, 17 Wall St.
Ross, John, & Co, d, 105, Reade St.
Thompson's, Saml, Nephew & Co 142 Duane St,
Graves, Austin C, Albany.
Hartley, Fred, 5 Mansion House Blk, Troy.

Hair.

Weeks, Chas R & Bro, 74 Murray St, N Y.
All kinds for all purposes.

Mohair Dealers.

Cilley, J K, & Co, 101 Gold St, N Y.
Fisher & Lachlan, 42 Letitia St, Phila.

Noils.

Willey, J H, 139 N Water St, Phila.
Hall, Wm, & Co. 25 N Front St, Phila.

Cut Flocks.

Farnum, Jerome B. 127 Canal St, Providence, R I.

Wool Extracts.

Sullivan, R T, 155 Federal St, Boston.

Wool Shoddies.

Basch, Isaac, 155 Duane St, New York.
Claremont Woolen Co, Claremont, N H,
Clegg & Bro, Howard & Berks Sts, Phil Pa.
Collings, Taylor & Co. Cleveland, Ohio.
E. Brookfield Woolen Co. E Brookfield, Mass.
Gray, T H & Co, 154 Federal St, Boston.
Little Falls Extract Co, Little Falls, N Y.
Mulhauser, F, & Co, Cleveland, O.
Slack, W H H, Springfield, Vt.
Smith & Cooley, Stafford Springs, Conn.
St Louis Woolen Mills Co, St Louis, Mo.
Sullivan, R I. 155 Federal St. Boston.

Wool Waste.

Bliss, Taft & Co. Norwich, Ct.
Dwight, Smith, 463 Atlantic Ave, Boston.
Farnum, Jerome B, 127 Canal St, Providence, R I.
Graves, Frank B, 467 Broadway, Albany, N Y.
Hull, Saml E, 112 Front St, Worcester, Mass.

Wool Combers.

Hamilton, W R & Son, Lawrence, Mass.

Wool Pullers.

Malone, Jas C & Co, 138-44 14th St, Jersey City N J
N. E. Dressed Meat & Wool Co, 20 North St, Boston.
Vanderbeck, A, 404-12 E 45th St, New York N Y

Rags.

Abbreviations: w, woolen; c, cotton.

Keenan, John, 17-25 Richmond St, Boston.
Moynihan, J J, 370 Federal St, Boston.
Priest Bros, 353 Canal St, Providence, R I.
Sargent, Henry, 8 Wash'n Sq, Worcester, Mass
Lewy Bros, 140 Nassau St, N Y.
McNaught, W W, c, w, 467 Atlantic Ave, Boston
Berg, Isidore, 189 So 5th Ave, New York.
Meyers, Edw N & Bro, 141 Duane St, N Y.

Rawitser, S. & Co. 140 Duane St, N Y.

Allen, Wm F, & Co, 132 N Front St, Phila.
Dodgson, H, & Co, c, w, 153 S Water St, Phila.
Kenworthy, B, & Co, 150 N Front St, Phila.
Kenworthy, T, & Bro, 111 Church St, Phila.
Neufeld, David, 1149 N Front St, Phila.
Sullivan, L. & Co, c, w, 612 St John St, Phila.

Tailors' Clippings, Seamed Cloth, Etc.

Levy, Geo A & Co, 20 Lincoln St, Boston
Moss, A, 151 & 153 Fulton St, Boston.

—MASSACHUSETTS, Williamstown. The American Napping Machine Co., find business considerably improved within a few weeks, and are now selling quite a number of napping machines.

—NEW JERSEY, Camden. Ackroyd & Scull, manufacturers of worsted yarns, contemplate moving their plant to Chester, Penn., on account of the high taxes at Camden.

—NEW JERSEY, Camden. The Camden Thread Co. has been incorporated, with capital stock of $100,000.

—NEW JERSEY, Deckertown. A committee of the Business Men's Association have visited Paterson, investigating the silk ribbon industry of Toner & Prescott, with a view to their removal to Deckertown. They estimated the cost of the removal to be about $2000, and a committee has been appointed to solicit subscriptions to raise the amount.

—NEW JERSEY, Paterson. The silk plant and fixtures at Clay & Groocock's mill have been transferred to John Bourdis and Teo M. Uyeno, for the benefit of the firm's creditors.

—NEW JERSEY, Paterson. Representatives from the Bamford Bros. Mfg. Co. have been visiting the South looking for a location to establish a branch factory of their silk mills. They visited among other places Hagerstown and Frederick in Maryland, and were very well pleased with the advantages Frederick offered.

—NEW YORK, Esperance. The mill property of the Esperance Knitting Co. has been sold by the receiver, W. B. Dunlap, to the following parties, all of Esperance: John Van Vechten, James Van Vechten, Edwin Dennison, Horace Avery, Albt. Vrooman and Chas. Lair. The mill was sold for $3800. It is not known what the new owners will do with the property.

—NORTH CAROLINA, Greensboro. The Guilford Cotton Mills, formerly known as the Crown Mills, are up for sale, we are informed, the proprietor, J. W. Alspaugh, having assigned for $60,000. This mill was formery operated by R. E. Causey, Amos Regan and O. S. Causey.

—ONTARIO, Alton. Benj. Ward, manufacturers of knit underwear has sold out his business to his son George Ward, who has been for some time superintendent of the Almonte Knitting Co. George Ward will take possession in 1895.

SITUATIONS WANTED.

The advertisers in the following columns should be addressed in care of Textile Mfg. World, or inquiries concerning them may be addressed directly to "Information Department, Textile Mfg. World," as full particulars of each advertiser are on file, and the addresses of suitable agents, superintendents and foremen for every branch of the textile industry will be furnished to manufacturers.

Any subscriber may file his application, and no charge is made until position is secured.

The business of this department is held strictly confidential.

The applications of good overseers in every department, who are in want of positions, are solicited.

Manufacturers are invited to use this department when in need of skilled men; each case will be handled confidentially, with promptness and judgment, and without charge to manufacturers.

COTTON SUPERINTENDENTS.

568 **Has had extended experience** in best New England mills; either as superintendent or carding overseer; very best references. Shirtings, sheetings, twills, white and colored.

679 **Ginghams or white** work in New England mill. Age 36, married. High reputation won by unusually successful career. Nothing less than $2500.

764 **Agent or superintendent**, has worked on threads and yarns, *leno* goods, lawns, satteens, etc., excellent references. Age 35 and married. Wants greater responsibility.

822 **Cotton flannels, all grades.** Desires position as superintendent, or assistant superintendent. Age 33; married.

934 **Ginghams, cotton dress goods,** shirtings, cotton and woolen, both fine and coarse, also cheviots. High up in his knowledge of these goods. Experience gained in Scotch mills. Is a practical dyer and finisher, and a practical designer. Desires a position as agent or superintendent, or as superintendent and designer. Age 42; married.

1010 **Wants position as overseer** in large mill or superintendent in a small mill. Strong point weaving. Good man. Is 42, and married.

1016 **Very desireable man**, wishes a superintendency. Strong point weaving, spooling, warping and dressing, but has also done good work in designing. Shirtings, sheetings, ginghams, ducks, demins, etc., etc. Is 35 and married.

COTTON CARDERS.

287 **Very Capable Cotton Carder**; age 42; married.

502 **Is an excellent overseer** on combed, carded, or colored stock; was in charge of a few of the best rooms in the country. 46 years of age, salary very moderate.

645 **Coarse and fine,** colored and white. Brought up in good mills. Thoroughly understands all makes of machinery in his department.

796 **Spinning or carding or both.** Good man, good record, prefers New England or Middle states, 45 years old, married. Salary $3.00 or so.

811 **All grades, carded, combed** white and colored. Is not afraid of rapid changing over. Good references, good experience.

824 **Good man for overseer** in medium or small mill, or for second hand in any large mill; good at figuring; good references.

826 **Has worked in best New England** mills; as second hand, and capable of taking an overseership in medium or small mill. Age 31.

835 **Overseer or second hand.** Has been second hand in some of the leading corporations in Mass. Salary, lowest, $2.75 per day.

839 **First Class Man, Small Mill.** Has worked on rope, twine, warps and hosiery yarn; white and colored. Age 30; married; salary $2.50.

910 **Is a good carder** on plain, colored and fancy white stock. Age 41. $2.50 and up.

922 **All kinds white or colored** from 1-2 to 14 hank. First-rate experience and references. Age 44, married. Salary $3.50.

COTTON SPINNERS.

555 **Ring spinning**, spooling, warping, twisting, reeling, winding and quilling. Age 38, married.

560 **Warps 4's to 60's.** Fillings, 16's to 20's Ring spinning. $4.00.

569 **Mule or Ring Spinning**; overseer. Has worked in good mills. Good references. Age 30; married; salary $3.00.

660 **Every variety** of yarns known to cotton manufacturing. Mule spinning, but will take rings with mules.

703 **Twisting frames** thoroughly understood by young man wishing employment as overseer or fixer. Single, fair salary.

724 **Ring Spinner** with good experience in mills of high standing. Well recommended. Married, 31 years of age. Fair salary.

735 **Mule or frames.** Age 43, married. 8 years in firstclass Rhode Island corporations. Can take position at once at fair salary.

766 **Overseer of mules and frames** has had experience in hosiery and all kinds of cloth mills, excellent references. 52 years of age, and married. Salary moderate.

COTTON WEAVERS.

176 **South preferred.** Understands fixing a loom, and not afraid to do it. Gets on well with Southern help

429 **Has worked on fine goods** of all kinds as overseer. Salary according to position. Age 28.

500 **Had to leave** the South on account of health. Wants Northern room. Colored work, quilts, Jacquard, etc. $3.00. Age 40, unmarried.

539 **Excellent manager** of help. Splendid record of production. Plain and colored work. Twills, ginghams. Age 35, married.

684 **Likes West or South.** All grades of brown goods or fine sheetings. Age 52, married.

711 **Southern, Western States** or Penn. prefered. Has had good experience on all kinds of heavy white or brown goods. Age 40, married. Pay moderate.

726 **Capable overseer** with experience on points, sheetings, twills, and sateens. Married, age 35.

837 **Sheetings, twills, satteens,** fancy goods, and leno. Age 34, married.

WOOLEN SUPERINTENDENTS.

654 **Cloakings, Cassimeres,** dress goods, flannels. Graduated from the weaving department; age 32, notmarried. Moderate salary.

760 **Superintendent or Asst. Superintendent** and designer, has worked on fancy cassimers, cheviots, and meltons. Age 31 years, married. Salary moderate.

771 **An excellent Supt.** for any woolen mill needing a man with his experience on cassimeres and dress goods. A good manager of help. Salary moderate.

781 **Thoroughly understands fabrics.** Superintendent and designer for many years in England and America, on all kinds of plain and fancy woolens and worsteds. Is married. Prefers to go South or West.

791 **A 1. Banks high because** of his life long and minute acquaintance with all kinds of worsted yarns. Native of France, 42 years old. Held responsible managing positions abroad. Salary $2000 or will take interest with responsible parties. Investigate.

803 **Is in the first ranks,** very able, good references; experience on all kinds of mens wear and dress goods; 33 years old and married.

809 **American, 24 years of age,** trained in foreign technical schools and mills; is practical in all branches of worsted yarn manufacture and is a good machinist. Desires position as overseer, assistant superintendent or superintendent.

WOOLEN CARDERS.

707 **Fine Flannel and Dress Goods** stock understood. A capable man, 35 years old, single. $3.00.

710 **Low stock his strong point,** but has carded all kinds of stock. Age 40; married. Salary $3.00.

738 **Boss Carder.** Knitting mill preferred. References excellent. Age 38 years.

762 **All kinds of goods,** is 50 years of age and married, will go anywhere except to the South, the West, or to Canada. Pay moderate.

776 **Has carded principally** for knitting mills, but also on cassimere and dress goods stock. Is 28 years old, and married. A desirable man. Pay moderate.

777 **Prefers west** of the Alleghany mountains, has worked on nearly all kinds of woolen goods. A trial will prove him a desirable man. Age 50, married.

787 **Capable man.** Carder. 42 years old, married. Good experience and well recommended. Has worked on beavers, cassimeres, dress goods, all kinds of mixes and hosiery.

797 **Will go anywhere,** trained under good men when second hand, experience in good mills since. Strong acquaintance with flannels, shawls and cassimeres. Age 33, married, salary $3.00.

833 **Carded fine flannel and ladies** suiting stock. Prefers Mass., R. I., or Conn., to work in. Is 27 years old and married; salary $3.00.

836 **Strong point, hosiery,** but has also carded extensively for dress goods, flannels, tweeds, etc. Age 35. Salary moderate.

913 **First class woolen carder** hosiery, dress goods, overcoatings, cloakings, cassimeres, (all wool and union), kerseys, meltons, etc. 35, married. $3.00 and up.

918 **Carder on tricots, serges,** coatings and blankets. Age 31; married. Wages moderate.

923 **Knitting mill his forte** either carding or spinning department or both, or could manage a mill; 28 years old, married. Wages $3.00

932 **Carder and spinner** in 3 to 5 set mill. Has worked on fine dress goods and cassimere stock. Age 29; married. Wages $3.00, or so

WOOLEN SPINNERS.

222 **First Class Overseer,** has worked on all classes of goods and in some of the most successful mills. Age 30; married.

685 **Fancy Yarns** as well as all grades of woolen. Just out of position through stoppage of mill. Age 37, married.

697 **Smart young man.** Good mule fixer, and had charge. Age 24, married. $2.50 per day All grades of stock.

747 **Highest references** as a boss spinner for 12 years. Has worked on all kinds of goods.

780 **Wide experience** as boss spinner on variety of stocks: Johnson & Bassett, Davis & Furber, Woonsocket Mule, and the Wright Spinner. 28 years old and single; best of references. Will not go West or South. Salary moderate.

941 **A Very Efficient Man.** Used to most every class of woolen goods; age 28, married. Salary moderate.

WOOLEN WEAVERS.

104 **American.** Practical and hard working. Good knowledge of designing, gets along well with help, understands looms thoroughly. Fancy cassimeres, shawls, dress goods.

WOOLEN WEAVERS.

176 **American Boss Weaver;** good manager of help. Has worked in cotton, woolen and jute mills. In cotton on 3 harness drill, plain duck, osnaburgs, sheetings, shirtings, etc; in woolen, 5 harness Kyjeans, linsys, etc.; in jute, on bagging; age 40: married; temperate, with good references. Salary moderate.

614 **Boss weaver and designer** has had a wide experience on cassimeres, dress goods, worsteds, casket cloths, beavers, flannels, blankets, doeskins, satinets and jeans. 45 and married. Salary $3 or so.

702 **Reliable overseer** of weaving. Son is loom fixer. Worsteds, shawls, flannels, all kinds of woolen goods, ginghamps. Good references. Age 50, married.

741 **Woolen and Worsted Weaver** on fancy worsted, cassimere and dress goods. Good references.

920 **Worked in some of the best** N. E. mills. Dress goods, unions, cassimeres, worsteds and cheviots. 28, and married. $3.00 or so.

1004 **New in the West,** good weaver. Experienced also in the best Eastern mills. Has worked on cassimeres, meltons, cheviots, beavers, cloakings, worsteds. Is 38 and married.

1008 **Wants boss job in flannel mill.** Northern New England preferred, also a good man for dresser or fixer, has worked on flannels, serges, cheviots, fancy dress goods. Is 34, married.

1020 **Woolen weaver, first class man.** Experienced on cassimeres, dress goods, shawls, flannels, etc. Good references.

WOOLEN FINISHERS.

193 **Woolen Finisher of first rank,** all classes of woolens from loom to case. Age 44; married.

358 **Heavy overcoatings,** beavers, chinchillas. Never held overseer's position, but second hand in fine mills. Would start low.

783 **Competent overseer** of wet and dry finishing. 45 years old, married. Has first-class recommendations. Many years experience on all classes of goods. Wishes to remain in New England. Fair salary.

828 **Desires a position in finishing** room; as second hand preferred. Is bright, intelligent, and capable of an overseer's position, acquainted with flannels, fancy suitings, cassimeres, overcoatings, carriage cloth, fancy mixed beavers. Age 23.

832 **A young finisher** desires a position as overseer. Has worked on all wool cassimeres, suitings, dress goods and cloakings, worsted suitings, and cotton and worsteds, union cassimeres and low grade shoddy. Age 28; married. Salary $3.00 or so.

905 **Chinchillas.** Wants position in charge of finishing. Has knowledge of about 150 styles in this line. Age 32; married. Pay moderate.

1007 **Dress goods and fine meltons** prefered, but has worked on all kinds woolens. N. Y. or N. E. states. Age 22, salary moderate

Finisher or second hand wants position, familiar with all kinds of woolen and worsted goods. Edward Wattslong, 11 Otis St. Boston care Chas. Wattslong.

DYERS.

742 **Cotton, Wool and Worsted Yarns** all colors. First class references. Age 43, married. Salary $35 per week.

774 **Worsted yarns, blue vats** pue woolen piece goods his strong point. Wants position as overseer. Age 24, four years experience in Rockville, Conn.

784 **Has good references.** Many years experience on dress goods, indigo blue, raw wool, yarn and piece dyeing. Married. Prefers eastern and middle states. Moderate salary.

793 **Boss dyer or second hand** has had experience in high standing mills on cotton and woolen dress goods. Age 23, salary $3.00 or so,

794 **All classes** of knit goods, and no better man for the work. Age 40, when a man's at his best. Married.

795 **Ten years experience,** strong point. skein, warp, hosiery yarns and long chain. Laboratory experience extensively on raw stock; 30 years old.

798 **Now employed,** giving good satisfaction; Age 25, married, experienced on wool, woolen and worsted yarns and piece goods, cotton and cotton yarns.

804 **All kinds of fancy woolen dyeing;** woolen and worsted skein, and piece; high or low grades, and raw stock.

806 **Has colored hosiery,** woolen yarn, piece goods, slubbing, raw stock and run indigo vats with success. Salary moderate.

808 **Cheviots, demins, cottonades,** checks, ginghams, shirtings, tickings; is 39 years old and married.

818 **All wool and merino hosiery,** carpet yarns, raw wool, rags, shoddy, and mixed goods. Age 30; married. Salary $3.00 or so.

831 **Experienced on woolen dress** goods and fancy cassimeres. Age 24. Salary $2.50 per day, or so.

904 **Worsteds, Meltons,** mixtures, and cassimeres. Is a good stayer. Married; with a family; age 44. Wages $2.50 or $3.00.

928 **Foreman dyer and finisher** of knit goods. Very extended experience on all kinds of cotton, wool, and mixed goods, in hosiery, underwear, and overshirts.

937 **Boss Dyer of the very First** Rank. Strong points; cotton, woolen, and merino yarns, raw cotton and wool, all kinds of hosiery.

939 **Yarns, Piece Goods and Hosiery.** First class man in every respect. Age 37.

1013 **Dyer on wool yarn and piece.** Is 43 and married. Has had 25 years experience in some of the principal woolen mills in Germany.

1022 **Second hand** in dye house. On knit goods.

DESIGNERS.

197 **All kinds of goods.** Age 34, unmarried. Past ten years has had great experience.

690 **Designer.** Fancy worsteds, cassimeres. Would also like the position of assistant superintendent. Refers to any firm ever worked for. $1200 or upwards.

Dyeing and Finishing Plant for Sale,

NEAR BOSTON.

A DESIRABLE PLANT FOR THE

Dyeing and Finishing of Cotton Fabrics, including Yarns, Hosiery, Silesias, Sateens and Jersey Cloth.

Buildings are new, and mill construction in first-class order; fitted with sprinklers, fire-pump, engine and boiler (125 h. p.) and shafting. Dimensions, two stories 100 x 40 feet, one story 90x32, and one story 50 x 35; with engine and boiler house. Water supply is excellent. The dyeing and finishing machinery will be sold either separately or with real estate. Railroad and shipping facilities are first class. Address, P, 124, care of Textile Mfg. World, Boston.

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To 54 & 56 Franklin St.,

One street North of previous location.

J. D. SHELDON & CO.

DESIGNERS.

760 **Desires advancement** in responsibility. Superintendent or Asst. superintendent and designer. Salary moderate; experience on fancy cassimers, cheviots and meltons. 31 and married.

755 **Young and Ambitious,** has worked on fancy cassimeres and cheviots, but principally worsteds. Would take a position as designer.

825 **First-class experience, English** mills, 4 years as assistant designer, and 3 years as designer and assistant manager. Fancy worsteds, woolens, serges, etc. Young man.

834 **Could introduce some good** things he claims, either in fancies, coatings, vicunas, Llamas, etc. Practical training acquired in England.

KNITTERS.

Situation Wanted. By a man of twelve years' experience as foreman of fixing, running circular and flat knitting machines on stockinet, eider down, rubber linings, warp machines and silk glove fabrics, and also experienced in the manufacture of dress and upholstery trimmings. P. 123

767 **Overseer of knitting,** has had a large experience on hosiery, will go any where. Pay moderate. Age 32, and married.

773 **An experience** on all kinds of underwear and plush. A good man, 45 years old and married. Overseer's position anywhere except the South.

673 **Superintendent of woolen hosiery.** Practical knitter and dyer. Large mill wanted. $4.00 per day.

721 **Superintendent** with good practical experience on fine and coarse seamless hosiery and mittens, unmarried, age 35 years. Pay $3.50 per day.

723 **Knitter or fixer,** has worked on stockinets, jersey cloth, rubber linings and fancy goods. Age 22, $15.00 or $18.00 per week.

769 **Capable manager** for any underwear mill wants a more responsible position, would especially desire to help start up a mill on ribbed goods.

772 **Boss knitter,** has worked as overseer in northern New York mills, experience on wool and cotton, heavy and light underwear. 31 years old, married. Pay very moderate.

815 **Superintendent** rib, circular, or fashioned. Underwear and hosiery, cotton, merino and worsted. A good man. Age 45.

830 **All classes cotton and woolen** hosiery. 28, and married. Salary $3.00 per day, or so.

915 **Wants position as boss knitter** or superintendent in hosiery mill. 21 years old, unmarried, salary $3.00 and up.

MISCELLANEOUS.

717 **Overseer on Noble combs.** As such can give satisfaction. Has had extensive experience on all grades carpet wools, shades and fancy mixes. Unemployed as mill shut down. Age 35. $3.00.

737 **Twisting Reeling and** Winding, either ring or flyer frames sewing thread, carpet warp, cotton flax or hemp.

782 **Temperate and steady.** Dresser tender. 36 years old, single. Many years experience on worsted coatings, cassimeres and dress goods. Good references; moderate salary.

Situation wanted by a working cotton superintendent. Has had charge of large ings, North and South; manufacturing tickmills staple and fancy ginghams, sheetings and towelings. Best of references as to character and ability. A young married man wanting to hustle all the time. Would invest in a small mill if wanted, either North or South. Address P. 120 Textile World.

SHORTHAND!

Young Men and Women; improve your condition in life by learning **Shorthand, the Stepping Stone** to prosperity. Anyone can learn in 20 easy lessons. Complete Instructions with Engraved Lessons only $7.50. Send for partulars.

NEW HAVEN SHORTHAND INSTITUTE,
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BOOKKEEPER WANTED.

Only one who has had long experience in textile factory and understands factory books need apply to Champlain Silk Mills, Whitehall, N. Y.

GREAT BARGAIN!

Cotton Mill, Brick and Stone,

Extra fine Water Power; 22 Cottages and 1000 acres of Land—in a healthy cotton country. Original cost $67,000. Will sell one-third interest for $5,000. Address R. P. GREGORY, 549 Fifth Street, Louisville, Kentucky.

Knitting Machinery for Sale.

Five Cooper Balmoral Knitting Machines, one 16, one 18, one 19, one 20, one 21 inch cylinders, 14 needles to the inch or 22 gauge.

1 Flat Cuff (Cooper make) Machine, 4 sections for shirts.

1 Flat Cuff Machine for Drawers with necessary changes for stripe 22 gauge work.

8 Singer Machines, chain stitch for finishing shirts; automatic tensions.

1 Crawford Steam Press, eight plates, room for ten plates including 1000 sheet of press paper.

1 Union Special Sewing Machine for ribbing cuff and shirt borders.

1 Wheeler & Wilson two line tapering Machine.

5 Union Special drawer finishing Machines.

1 32-inch Tolhurst Extractor.

1 two-pipe Sturtvant Blower.

6 sets of Washing Rolls and Boxes.

1 Power Eyelet Machine.

These machines are all new, only used about six months and we wish to sell as we have no use for them as we think of changing our plant to other work. The price we place on this machinery will be F. O. B. at factory in Illinois. Address B. T. E. & Co., care Textile Mfg. World, Boston, Mass.

For Sale at Reasonable Price.

A 3 set woolen yarn mill, machinery all in excellent shape, and now running. Building large, well lighted, solid, stone, in best of repair, 40 knitting machines for hosiery. Business well established, locality very favorable, fuel and water cheap. Reason of sale death of principal partner. Address, 'N A," care of Textile World.

PRACTICAL

Cotton Manufacturer

WANTED! To correspond with an experienced and practical "Cotton Mill Man," possessed of some capital to invest in a cotton mill and operate the same. The mill is not only in perfect running order but is also most favorably and beautifully located adjoining the city. Address C. L. Stadtler, Pres. Excelsior Manufacturing Company, Cuero, Texas.

Amount of capital not so important as to secure the right man who is capable of running the business successfully.

FOR SALE!

FOUR SETS Woolen Machinery.

Consisting of 4 sets of 48-inch Cards with Brumwell Feeds, Four 216 spindle, 2-inch gauge Mules, Sixteen broad Crompton Looms, 4 x 4 box, with preparatory and finishing machinery complete; located in building with waterpower; mill steam heated at low rental. Free schedule of machinery and prices on application to

C. W. ARNOLD, Troy, N. Y.

WANTED!

Working capital or parties to take stock in a small steam plant making yarns 4 4 Sheeting and Batting. We are chartered under the laws of Tennessee and have privilege to increase our stock at pleasure. Our situation cannot be excelled for a manufacturing point; on two good railroads in the cotton country getting it from the fields. Fuel and labor cheap. 2000 inhabitants and a healthy town. We will sell or issue stock to parties that wish to invest. Mill will pay 6 to 10 per cent. For further particulars address Lock Box 207, McKenzie, Tenn.

Factory Sites For Sale or Lease

OLD TOWN, MAINE.

Unfailing water power at a very low price. Abundant supply of reliable operatives. Railroad track to the mill yard. Exemption from taxation for 10 years. Address J. W. HARMON, Agent Bodwell Water Power Company, Old Town, Maine.

FOR SALE.

Cotton and Woolen Machinery.

Largest lot in store to be found in this country. Storehouses with over two acres of floorage.

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SECOND HAND ROTARY CLOTH PRESSES FOR SALE.

We usually have on hand, taken in exchange, rotary cloth presses of nearly all the best makes. These will be sold at a bargain, and put in first class condition, practically as good as new, if so desired. We now have on hand a 12 in. Cylinder Springiman, and a 10 in. Cylinder Miller Press, 2nd hand. Miller Press & Machine Co., Woonsocket, R. I.

BALDWIN'S Self-Instructor in Designing.

I have one copy which cost $10.00 a few months ago and will sell it for $6.00.

Address, X. X. X., This Office.

MACHINE SHOP FOR SALE.

A shop fitted with the latest and best tools, situated in New York State, and which has been running a comparatively short time in the manufacture of knitting machines, is now offered for sale at a bargain, on account of ill-health of the owner. Any parties desiring to enter the manufacture of light weight machinery will find this an excellent opening. Full information can be obtained by addressing "KNITTING MACHINE SHOP," care Textile World.

RARE OPPORTUNITY!

Knitting Plant

FOR SALE.

Situated in a Western city; trade fully established with the best houses in the United States. Use all Lamb Machines and make Ladies', Misses' and Children's garments; Balbriggan, Wool, Silk and Merino. Had more orders than the mill could fill, last year.

Stock company, would sell part of the stock to the right party who would take charge of the business, but such a party must have experience. Present owners desire relief; too much other business. This offer will bear investigation. Address "K," Textile World Office.

Valuable Mill Site.

AT SALEM, 2000 ft. frontage on Salem Harbor, with wharf 265 ft. in length for landing coal or materials. Track connection can easily be made with the B. & M. and Lowell R. R. systems, a few hundred feet distant.

The property comprises 12 acres of solid upland located next eastward of the coal piers of the Philadelphia & Reading Coal & Iron Co.

A brick factory and engine room 50x125 ft. brick chimney, 100 H. P. engine, shafting, &c. 110 H. P. boiler. Wooden warehouse 50x100 ft., iron sheathed, 2 stories with elevator.

2 wooden buildings 30x15 ft. and 25x10 ft.

Large dwelling house, barn and stable. City water supply from Wenham Lake. For sale by Lamont G. Burnham, Boston; Henry W. Peabody, Boston; Henry C. Piper, New York, Trustees.

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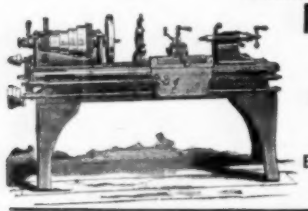

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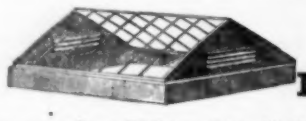

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For regulating the speed of machines automatically or by hand. Thousands of sets in operation driving all kinds of machinery which requires from 1 to 50 H. P.
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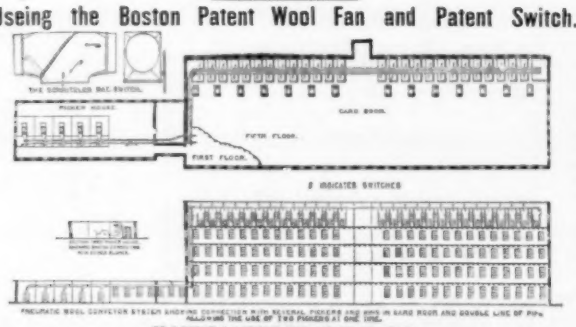
For the Rapid Handling of Wool, Cotton Stock, Rags, Excelsior, Jute and all kinds of Fibrous Material, wet or dry.
Useing the Boston Patent Wool Fan and Patent Switch.



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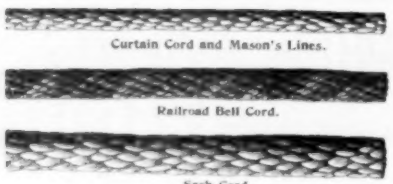
CHATTANOOGA STEEL ROOFING CO., Chattanooga, Tenn.

The Union Braided Cord Machine Company,
76 Chauncy Street, Boston.
MANUFACTURERS OF
MACHINES FOR MAKING . . .
Solid Braided Sash and Other Cords, from Cotton, Linen, Italian Hemp, Jute, Etc.



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OUR MACHINES will turn out 25 to 40 pounds daily of Cotton Sash Cord and make the strongest, stiffest and best Cord on the market. We are ready to negotiate for the placing of a limited number of these machines (built under our own patents) in this and foreign countries.

ROBERTSON THOMPSON $40.00
Y SHOULD U PAY
$50.00 for and Indicator when you can get either of these for $40.00 packed in finest cases, finest workmanship, finest material, and the best designs.
Send for circular of Reducing Wheels, Planimeters, Three-Way Cocks and 25 other high grade specialties.
HINE & ROBERTSON CO.,
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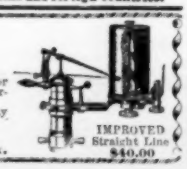

IMPROVED Straight Line $40.00

MILL NEWS.

See also Page 24.

New Mills.

Cotton.

—ALABAMA, Birmingham. The King Land & Improvement Co. wants estimates on the cost of outfit for a small cotton mill.

—ALABAMA, Dothen. It is reported that a cotton factory is to be built at this place at a cost of $25,000.

—FLORIDA, Lake City. The Lake City Mfg. Co. has been chartered with capital stock of $100,000. Subscriptions are now being solicited. George R. Latham, of Buchannon, W. Virginia, is interested.

—GEORGIA, Bethel. J. M. Martin writes us that he is in want of a small plant of from four to twelve looms, and machinery to take cotton from the gin and prepare it for the looms.

—GEORGIA, Carrollton. In regard to the cotton mill at this place, which we reported last month, we have the official information that a new mill is to be built for the manufacture of white and plaid domestics, carpet twine and knitting thread. Foundation will be started about the 15th of April. They will have a dye house attached and run by steam power. About 300 hands will be employed.

—GEORGIA, Douglasville. There is talk of a cotton mill to be erected at this place. A committee, consisting of J. A. Pittman, J. T. Duncan, J. B. Baggett and others, has been appointed to take the matter in hand.

—GEORGIA, Franklin. The citizens of this place are making efforts to organize a company to erect a cotton mill.

—GEORGIA, Swainsboro. There is talk of starting a cotton factory at this place. Judge G. S. Rountree and George Bell are interested.

—MISSISSIPPI, Oxford. A cotton factory is proposed for this place which will cost $250,000.

—NORTH CAROLINA, Concord. A company has been organized by G. W. Patterson to build a cotton mill containing about 2000 spindles.

—NORTH CAROLINA, Maiden. H. F. Carpenter Sons & Co., manufacturers of cotton yarn, are looking round, it is reported, for a favorable site on which to build a cotton factory.

—SOUTH CAROLINA, Camden. The Camden Cotton Mills company have their new building completed and ready for machinery. They will put in 12,000 spindles and 350 looms, which machinery we are informed has not been contracted for.

—SOUTH CAROLINA, Charleston. It is reported that an Eastern capitalist is in correspondence with parties at this place, with a view to establishing a cotton mill here, to be worth $500,000. No names are given out.

—TENNESSEE, Jackson. The Jackson Board of Trade are corresponding with some Eastern capitalists, with a view to locating a cotton mill at this place, at the cost of $225,000.

Woolen.

—COLORADO, Denver. The Manufacturers' Exchange is in correspondence with New England parties who contemplate establishing a 4-set woolen mill in Denver to manufacture medium grade cassimeres, worsteds, cheviots, overcoatings, etc.

—MASSACHUSETTS, Norton. Work has been commenced on clearing up the ruins of Talbot's mill, we are informed. There is talk of its being rebuilt at once, although we have no authentic information.

—NEW JERSEY, Garfield. A number of capitalists propose erecting and operating a shoddy mill at this place. It will be known as the Garfield Woolen Co.

—NEW YORK, New York. The American Hair Felt Co. has been incorporated, with capital of $12,000. The directors are B. F. Webb, J. DeLong, H. M. Thompson, Lowell, Mass., and K. Upton, of Boston.

—NORTH DAKOTA, Cavalier. J. O. Blichfield, secretary of the Security Trust Co., at Grand Forks, has made an offer to the citizens of Cavalier to put in a woolen mill which is now located at Grand Forks. A small bonus is asked, and it will probably be raised in a few days.

—ONTARIO, Toronto. A new company, called the Whyte-Allan Co., has been incorporated, with capital stock of $20,000. They will manufacture crapes, gimps, braids, tassels, etc. T. A. Whyte is one of the incorporators.

—RHODE ISLAND, Harrisville. We are officially informed that Wm. Tinkham & Co. have not yet decided what they will do in regard to their mill which was destroyed by fire, as they feel there is not much encouragement under the present state of business. They have commenced to clear away the ruins, and will perhaps put up a smaller plant than the old one.

Knit.

—CONNECTICUT, Danielsonville. We have the official information that H. E. Wilson & Co., reported last week, commenced March 26, on the manufacture of gents' and children's half hose. Their machinery is the latest improved. They now have seven knitting machines, but expect to enlarge in about a month.

—GEORGIA, Athens. Mr. R. L. Bloomfield-president of the Athens Mfg. Co., is interested in establishing a knitting mill in this city. He proposes, that if fifty men will each buy one knitting machine, to operate the plant himself, guaranteeing 6 per cent. on the investment free from taxes. The plan has been meeting with success, and the mill will undoubtedly be started.

—MASSACHUSETTS, Needham. George E. Wye, formerly of the firm of Wye Bros., who recently dissolved partnership, has built a new establishment for the manufacture of sweaters and general athletic goods, also worsted and silk mittens. They have seven power and three hand machines. The factory is now running. They sell goods direct.

—MASSACHUSETTS, Pittsfield. A new knitting mill is contemplated at this place. Parties are negotiating for the purchase of the grist mill on Wahconah St., owned by R. A. Teeling, which they intend to convert into a knitting factory.

—NEW YORK, Oswego. A new factory for the manufacture of underwear is shortly to be started in connection with the Ontario Hosiery Mill. The mill will be operated by J. H. Quirk, Peter Dowdle, Thos. F. Shields and an Eastern capitalist who withholds his name for the present.

—RHODE ISLAND, Providence. The Vesta Knitting Mills, which we reported last week were making an addition to their hosiery department, inform us that they have a new mill just completed for the manufacture of gents' half hose and ladies', children's and infants' hosiery. They have 100 new knitting machines which are operated by steam power. They will make 24 to 36 gauge goods, and begin production in June.

—RHODE ISLAND, Woonsocket. A new company is being formed here for the manufacture of cotton hosiery. Some Providence capital will be invested, and it is probable that the works will be located in the building of the American Worsted Co., on South Main St. They will employ 75 hands at first, and increase as business warrants.

Silk.

—NEW JERSEY, Paterson. The Vega Silk Co. has been incorporated, with capital stock of $10,000, of which $2000 has been paid in. The stockholders are Johanna Frame, John R. Frame and Smith Chittenden.

—NEW YORK, Yonkers. The silk mill of Straus & Co. is being removed to Paterson, N. J., and a new silk firm is soon to be started in the vacated mill.

—PENNSYLVANIA, Freeland. Samuel Mismer, a silk ribbon weaver, has visited this town with a view to establishing a six-loom plant. A. W. Washburn and E. U. Turnbach can give further information.

—PENNSYLVANIA, Quakertown. A movement is on foot to erect a silk mill at this place. A party owning several mills promises to locate here if he receives proper inducements.

—VIRGINIA, Keysville. The Virginia Silk Mfg. Co. has been granted a charter to manufacture and deal in all kinds of silk, with capital stock of $100,000. J. T. Goolrick, of Fredericksburg, is president, and Louis C. Bailey is local agent.

Enlargements and Improvements.

Cotton.

—CONNECTICUT, Stamford. The Boss Thread Co. are running full time with nearly a full force of employees. This company has been very successful since starting its plant in Stamford. If business continues as good after tariff legislation has been settled they will increase their capacity to one third, particularly in the finishing department. In each department we understand they will duplicate the machinery they are now using.

—GEORGIA, Augusta. The Warwick Cotton Mills Co. have increased the capacity of their mill by the erection of a new weave shed, built of brick, 75x120 feet, one story. One hundred 36-inch Whitin looms have been placed, and it is the intention of the company to put in more in the near future.

—GEORGIA, Newman. It is understood that the Wahoo Mfg. Co. contemplate putting in new looms for the manufacture of webbing.

—MASSACHUSETTS, Fall River. The Pocasset Mill is having constructed a 1200 h. p. compound condensing engine to be placed in their mill. They are running night and day to complete orders now on hand.

—MASSACHUSETTS, Fall River. The Fall River Manufactory is reorganizing its mill and putting in new and modern machinery. The mill will be closed down for three months.

—MASSACHUSETTS, North Adams. Sixteen new Mason looms are to be placed in the Beaver Mill at this place, also improvements are being made in the spinning room.

—MASSACHUSETTS, Turner's Falls. The Turner's Falls Cotton Mills are putting in additional machinery into their mills.

—MASSACHUSETTS, Westfield. The W. Warren Thread Works will increase their business by an addition for the manufacture of twines, macrame, cable and hawser cords.

—NORTH CAROLINA, Durham. The Erwin Cotton Mills are having new machinery placed in their mill. When the additions are completed the capacity of the mill will be 13,000 spindles.

—NORTH CAROLINA, Rockingham. The Midway Mills company are having an addition built to their plant. It is 50x130 feet, and it is probable that they will put in new looms.

—PENNSYLVANIA, Conshohocken. J. Elwood Lee & Co. are building an addition and putting in new machinery to their mill, for the manufacture of medicated cotton.

A. KLIPSTEIN & COMPANY,
Dyestuffs & Chemicals
Fast Alizarine Colors
For Wool a Specialty.
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DAVIS & FURBER MACHINE CO.,
WOOLEN MACHINERY
North Andover, Mass.

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Engineer and Builder.
Office, Paterson National Bank Building, Paterson, N. J.
Contracts taken for all classes of Mill and shop construction; complete plans and specifications furnished as a part of the contract. Correspondence is solicited with parties intending to erect buildings of this character who wish to have the entire work done under one contract, including the engine, boilers, heating apparatus, plumbing, etc. Satisfactory reference will be given from parties for whom similar work has been done.

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Worcester Chemical Compartment
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Manufacturers of

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Diploma, New England Fair, 1890 and 1891.
Medal, R. I. Industrial Exhibition, 1890.
Medal, Mass. Charitable Mechanics' Association Fair, 1890.
Grand Bronze Medal, Industrial Exposition, San Francisco, 1891.
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